

# **MODIS DATA SYSTEM STUDY**

## **TEAM PRESENTATION**

September 30, 1988

### **AGENDA**

1. Commonality Between the HIRIS and MODIS Data Systems
2. Questionnaire
3. DADS Operational Concepts
4. MIDACS Context Diagrams, Data Flow Diagrams, and Data Dictionary
5. Action Items

## Commonality Between the HIRIS and MODIS Data Systems

EosDIS is requiring that GSFC and JPL collaborate in defining common elements of the HIRIS and MODIS data systems, and in designing the data systems to maximize the degree of commonality, particularly from the point of view of the user. The results of this analysis are to be delivered by December 1, 1988. During a Wednesday (9/28) meeting between GSFC and JPL, a study plan was identified, including deliverables and a schedule. The documentation includes the following: (1) level-I (system) science functional requirements; (2) level-II (CDHF, DADS, etc.) science functional and performance requirements; (3) operational concept (including data flows, teams/organizations/responsibilities, and scenarios); (4) preliminary system specifications, and; (5) conceptual design.

Initially, the two groups will produce a first cut at the first three documents. This phase will end with a meeting at GSFC, which has been scheduled for October 25, during which the requirements and operations concepts will be merged. The joint documentation will be produced during November, with one or two additional meetings required.

## QUESTIONNAIRE

1. Science Data Product:
2. Definition (include SI unit):
3. Spatial and Temporal Resolution and Coverage Requirements (include current capabilities and the goals for the MODIS):
4. Accuracy Requirements (include current capabilities and the goals for the MODIS):
5. Input Data Required:
  - 5.1 MODIS sensor channels:  
  
MODIS-T:  
  
MODIS-N:
  - 5.2 Ancillary data (i.e., data from polar platform, including other sensors):
  - 5.3 Delivery requirements (where, when, how, and how often):
6. Level 1 Processing Requirements:
  - 6.1 Calibration accuracy:
  - 6.2 Calibration scenarios (sensor, surface, and data):
  - 6.3 Instrument long-term stability requirements (what do you plan to use this for, i.e., is it necessary):
  - 6.4 Scenarios for monitoring instrument trend:
  - 6.5 Anticipated Recalibration Requirements (upper limit):
  - 6.6 Earth location accuracy requirements (include methods for attaining the stated accuracy)
  - 6.7 Level 1 data products
    - 6.7.1 Description of Level 1A data products (list ancillary data to be merged with sensor data):
    - 6.7.2 Description of Level 1B data products (include strategies for segmentation, and logical record organization):
    - 6.7.3 Desired distribution media:

- 6.7.4 Delivery requirements (where, when, how, and how often):
- 6.8 References (for calibration, trend analysis, and Earth location):
- 7. Parameter Retrieval Algorithms:
  - 7.1 Algorithm description (include description of how input data are used by the algorithm):
  - 7.2 Limitations of the algorithm (e.g., accuracy limitation, limited parameter range of validity, etc.):
  - 7.3 Discussion of algorithm development status:
  - 7.4 Estimates of computing resources:
    - 7.4.1 CPU:
    - 7.4.2 Memory:
    - 7.4.3 Lines of code (specify language):
  - 7.5 References:
- 8. Level 2 Data Products
  - 8.1 Estimate of data volume:
  - 8.2 Desired distribution media:
  - 8.3 Delivery requirements:
- 9. Level 3 Requirements:
  - 9.1 Description of standard mapped data products (include bin sizes for spatial and/or temporal averages; also indicate type of projections desired (e.g., Mercator and/or polar stereographic projections):
  - 9.2 Estimate of data volume:
  - 9.3 Desired distribution media
  - 9.4 Delivery requirements:
- 10. Validation Requirements:
  - 10.1 Use of in-situ data:
    - 10.1.1 Description of in situ data (include accuracy requirements):

- 10.1.2 Description of in situ experiment (in situ experiment planned for supporting MODIS or current ongoing experiment that may help in validating MODIS-derived parameters):
- 10.1.3 Comparison procedure (describe how the MODIS-derived parameter values are compared with the ground truth measurements. Include descriptions of statistical methods, mapping overlays, mathematical methods of analysis, graphical methods, etc.):
- 10.1.4 Description of current in-situ validation efforts:
- 10.1.5 Near real-time requirements for field experiments or target-of-opportunity observations:
- 10.1.6 References for in situ experiment and validation efforts:
- 10.2 Use of geophysical model(s):
  - 10.2.1 Description of the model:
  - 10.2.2 Description of model inputs (include accuracy of the model):
  - 10.2.3 Procedures for using the model for validation (include descriptions of analysis methods and accuracy limitations):
  - 10.2.4 Discussion of current modeling validation efforts:
  - 10.2.5 Estimate of computing resources:
    - 10.2.5.1 CPU:
    - 10.2.5.2 Memory:
    - 10.2.5.3 Lines of code (specify language):
  - 10.2.6 References for modeling validation efforts

## 11. Browse Data Products

- 11.1 Product descriptions:
- 11.2 Estimate of data volume:
- 11.3 Frequency estimate:

12. Existing Data Products from Precursors to MODIS:

12.1 Brief description of products (identify sensors and aircrafts and/or spacecrafts that carried the sensors):

12.2 References:

**MIDACS**

**DATA ARCHIVE AND DISTRIBUTION SYSTEM  
(DADS)**

**Operational Concepts**

**9/30/88**

# **MIDACS DADS OPERATIONS CONCEPT**

## **Purpose**

- **Provide a basis for understanding the DADS operational concepts in the MIDACS/EosDIS context**
- **Support development of functional and performance requirements for the DADS**

## **MIDACS DADS OPERATIONS CONCEPT**

### **Functional Requirements**

- **Receive Data**
  - Ingest, Acceptance Check, Process Headers, Organize
- **Manage Data**
  - Store, Manage Catalog, Report Status
- **Process User Request**
  - Receive Request, Retrieve Data, Status Request
- **Distribute Data**
  - Generate Direct Product, Distribute/Transmit Data

# **MIDACS DADS OPERATIONS CONCEPT**

## **Archived Data Types**

**Level 1 - 4 Standard MODIS Instrument Data Products** (including Browse)

**Specialized Data:** non-standard, specific research investigation for limited region or time, TMCF produced

**Ancillary Data:** engineering, orbit/attitude, calibration, other instrument

**Correlative Data:** scientific data not from MODIS, in-situ data

**Catalog/Directory:** grouping, location, algorithms, ownership (originator, discipline)

**Processing Algorithms:** algorithms, supporting documentation, and DQA criteria

## **MIDACS DADS OPERATIONS CONCEPT**

### **Data Ingest Assumptions**

- 1. Data rates of L1 A/B  $\simeq$  1.0 Terabits/Day, L2  $\simeq$  2.0 Terabits/Day, L3  $\simeq$  0.3 Terabits/Day**
- 2. 20% overhead for formatting and file management (catalog/directory) (Ref. 3)**
- 3. Level 0 not stored (stored temporarily at the DHC)**
- 4. Browse files may be resident in archive**
- 5. Reprocessed data replaces previous data**
- 6. Potential over-sampling of data not included**
- 7. Data stored for two years before release to permanent archive (Ref. 3)**

## MIDACS DADS OPERATIONS CONCEPT

### Ingested Data Volume

DATA	INGEST RATE* (Terabits/Day)	STORAGE VOLUME (Terabits/2 Yrs.)
L-1A	1.2	876
L-1 B	1.2	876
L-2	2.4	1752
L-3	0.36	263
L-4	TBD	TBD
Specialized	.52 (10% standard) <sup>a</sup>	380
Correlative	TBD	TBD
Ancillary	< 0.01	< 7.3
Browse	TBD	TBD
<b>Total</b>	<b>5.68</b>	<b>41.46</b>

\* – with 250 overhead

a – Ref. 3

# MIDACS DADS OPERATIONS CONCEPT

## Data Request Estimate

FACILITY	DATA	NO. OF REQUEST
CDHF	L-1A, Calibration Reprocessing <sup>a</sup> L-1B, Reprocessing of L-2 and L-3 <sup>a</sup>	2/mission
TMCF	Portions (10%) of L-1A thru L-3 for calibration and science algorithm development and maintenance	Approximately 150/yr.
	Portions (10%) of L-3 for scientific applications	Approximately 50/yr.
USERS	Level-2      Interdisciplinary studies	TBD
	Level-3      Surface Temperature (land/ocean) <sup>b</sup> Vegetation Indices (land/ocean) <sup>b</sup> Aerosols <sup>b</sup> Atmospheric Profiles	(60/75)/yr. (100's/250)/yr. 50 – 100/yr. 250/yr.
	Level-4      TBD	TBD

a = Ref 1, b = Ref 5

# **MIDACS DADS OPERATIONS CONCEPT**

## **Data Distribution\***

### **Electronic Capability**

- **Dial-Up 9.6 Kbps for catalog interrogation and user request**
- **NASA Networks: 9.6 Kbps - 6.3 Mbps for high speed communications, NASCOM, PSCN, SPAN, NOAANET**

### **Direct Product**

- **Copy of archived data on physical medium such as optical disk, magnetic tape, optical tape, or hardcopy**
- **Browse catalog if on-line browse not available**

**\*- Ref. 1/Ref. 6**

## MIDACS DADS OPERATIONS CONCEPT

### Mass Storage Systems\*

Type	Data Rate	Data Volume	No. for 2 yr./1 day
Magnetic Disk ('92)	96 Mbps	20 GB	25900/36
Magnetic Disk ('98)	192 Mbps	40 GB	12950/18
Magnetic Tape	400 Mbps	100 GB	4144/6
Video Cassette Autochanger	200-400 Mbps	57 TB	9/ < 1
Optical Tape (11.5' dia., 7000 ft.)	24-1600 Mbps	2.5 TB	207/ < 1

\* - Ref. 1

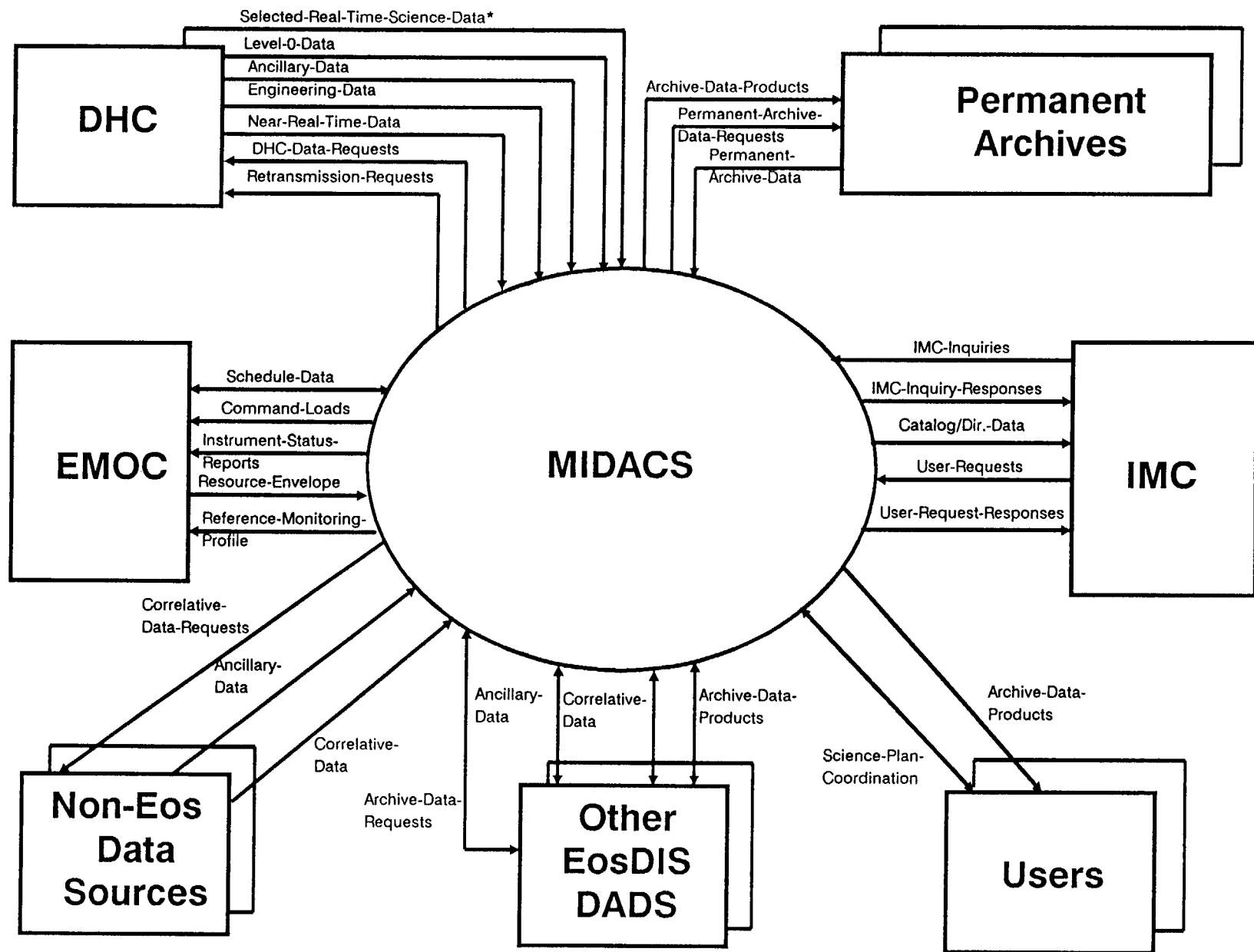
## **MIDACS DADS OPERATIONS CONCEPT Issues and Assumptions\***

- DADS will not produce data, including browse data
- DADS will not provide sophisticated data compression, averaging, or interpolation
- DADS will provide simple compression, reformatting, and subsetting
- DADS will provide data for reprocessing or higher level processing on demand at CDHF request
- DADS will move archived data to permanent archives after two years
- DADS will update the IMC catalog and directory
- DADS will provide data access security and integrity
- DADS will replace previous data with reprocessed data
- The CDHF and TMCF will access data directly from the DADS
- Users not on MODIS science team will order data through the IMC

\* – Ref. 1, 4, 5, and 6

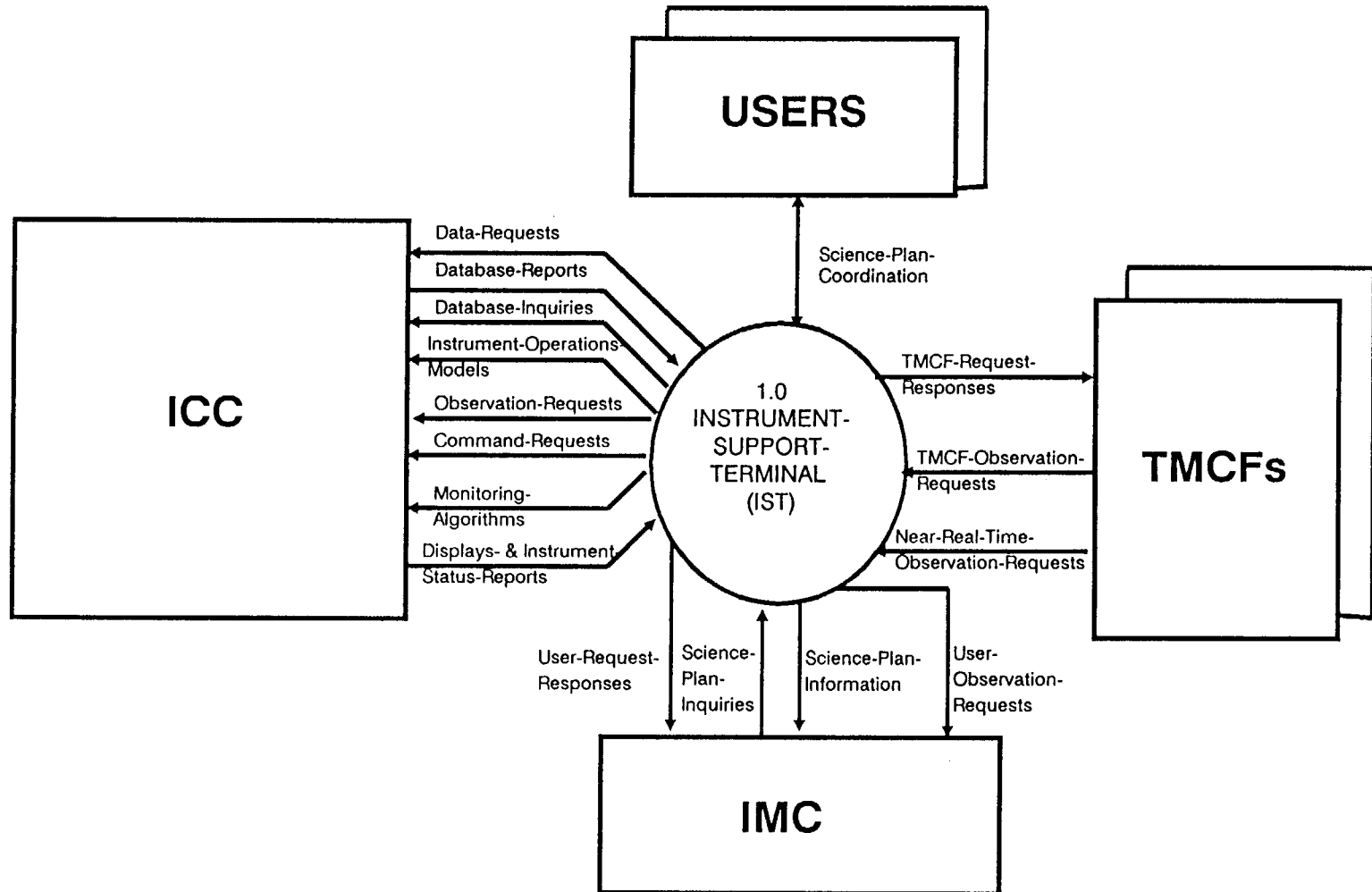
## **MIDACS DADS OPERATONAL CONCEPTS References**

- 1. EosDIS Baseline Report, CTA, 7/88**
- 2. System Specifications for the Space Telescope DADS, NASA, 5/87**
- 3. EosDIS Data Transfer & Data Communications Requirement Study, SAR/GSFC 7/88**
- 4. DADS Perceptions, J. Berbert, 8/86**
- 5. MODIS Instrument Panel Report, Vol. IIb, NASA, 1988**
- 6. EosDIS Report of the EOS Data Panel, Vol. IIa, NASA, 1986**

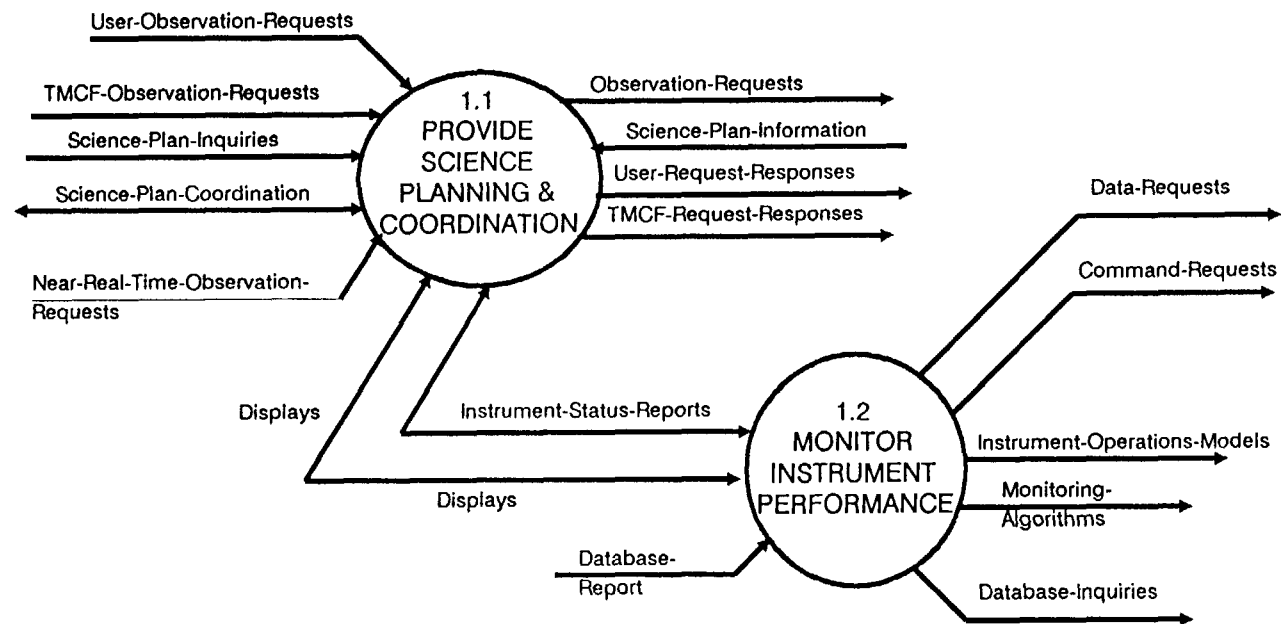


\* Tentative. Issue under discussion.

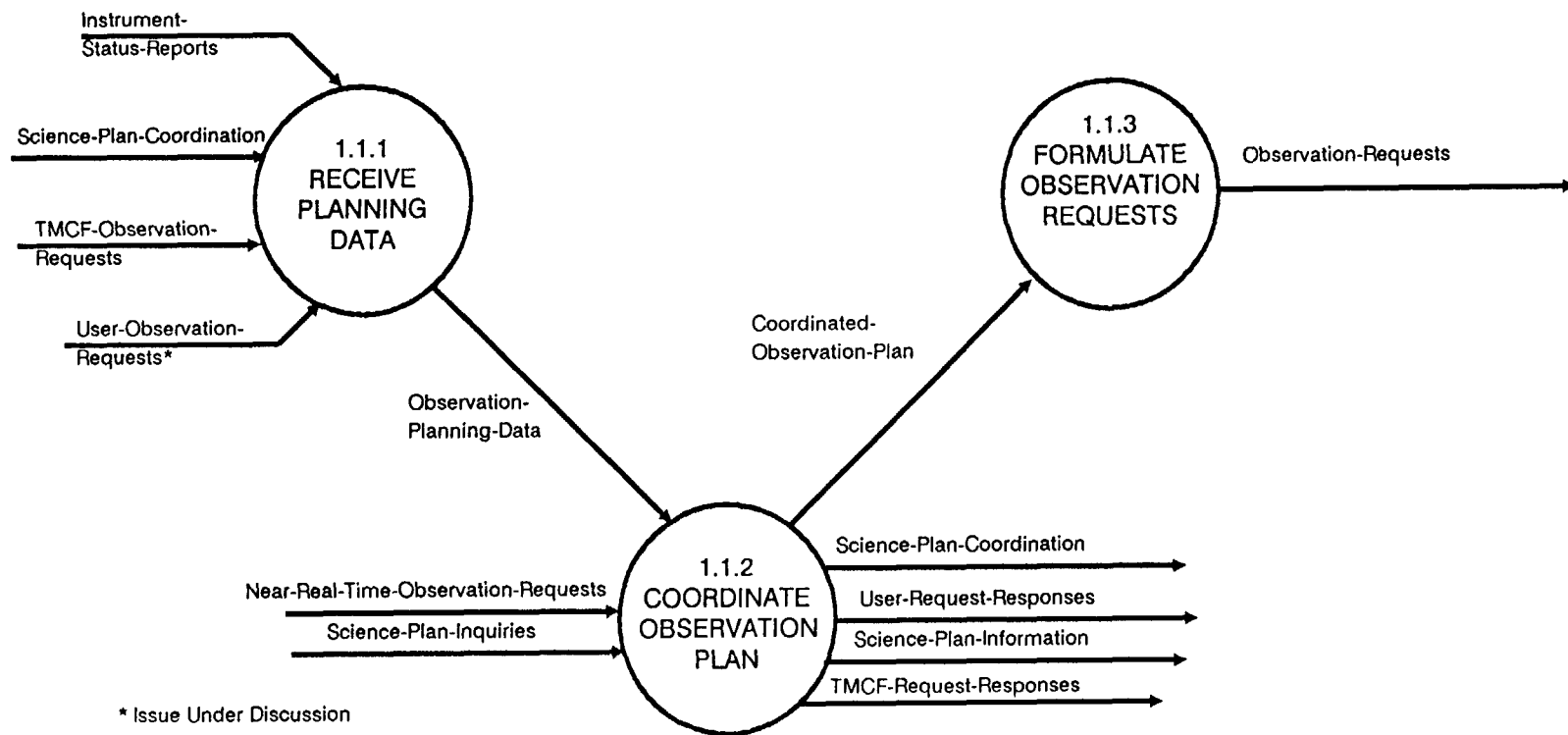
**MIDACS Context Diagram**



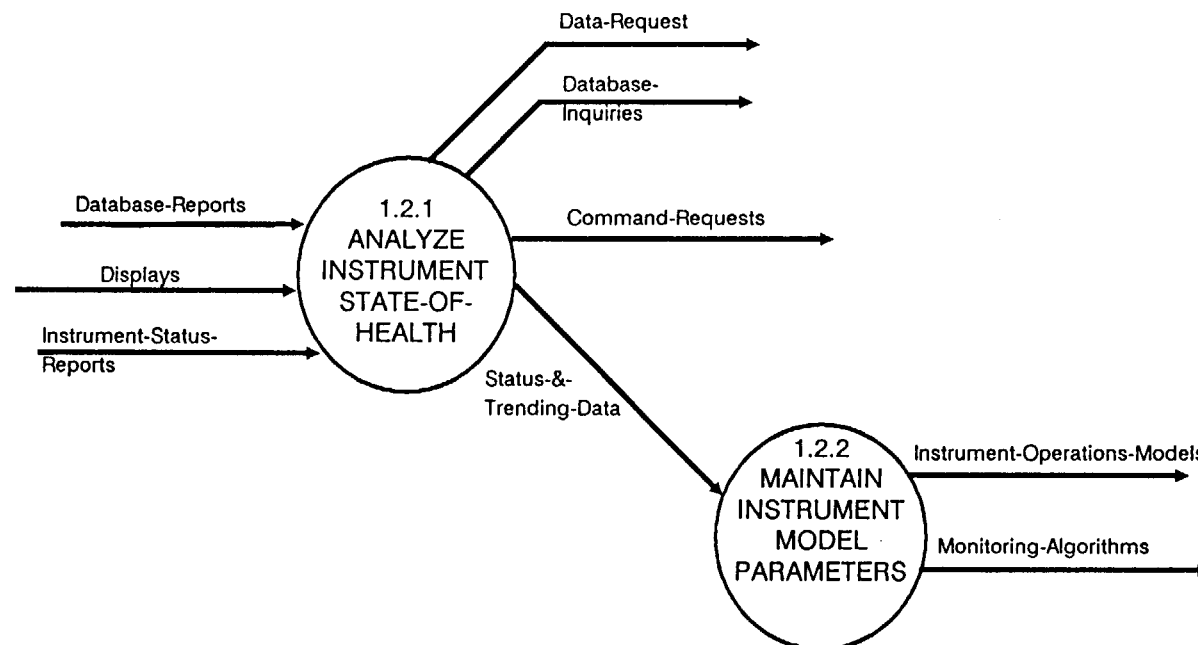
**IST Context Diagram**



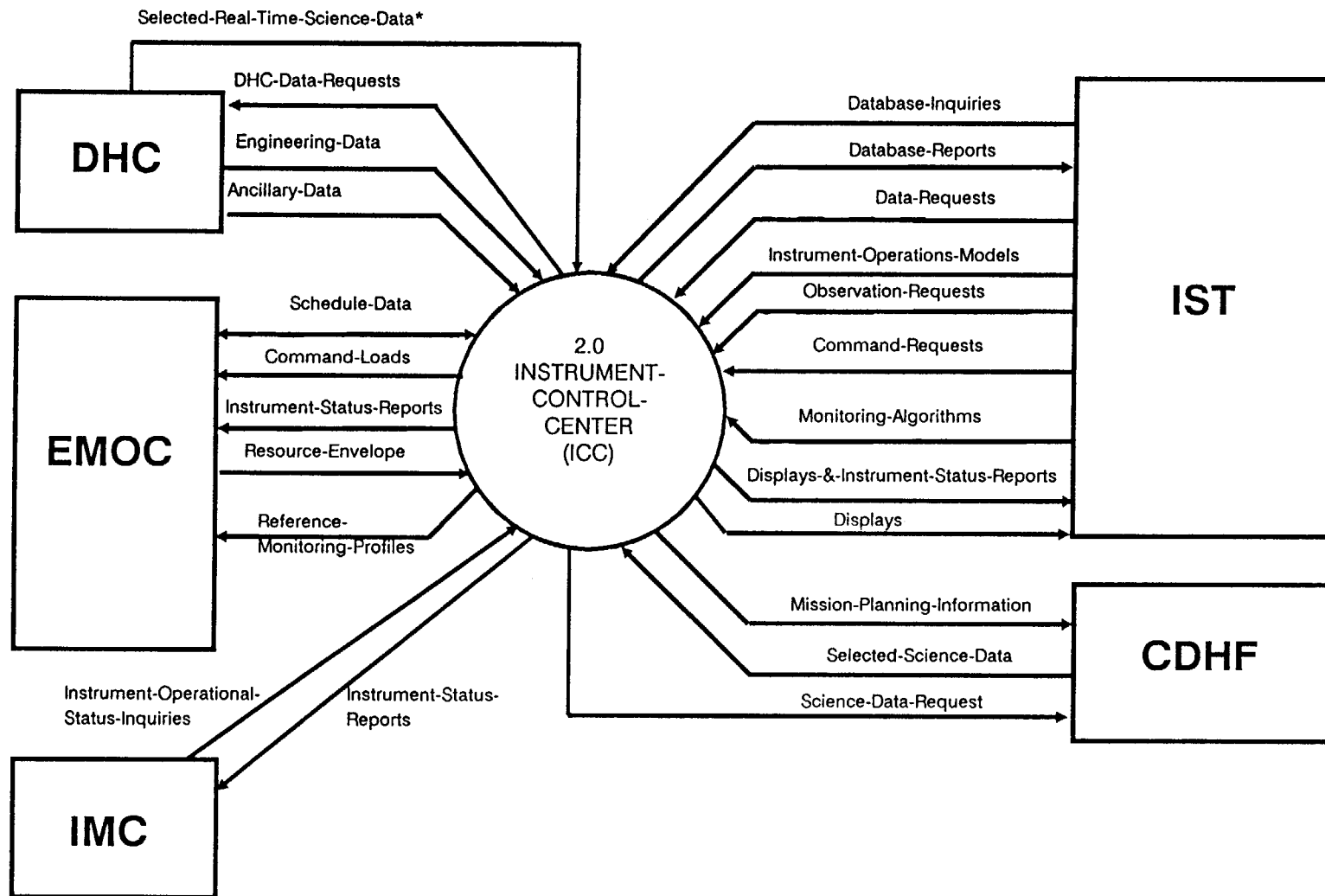
**DFD 1.0 IST Functional Data Flows**



**DFD 1.1 Provide Science Planning and Coordination**

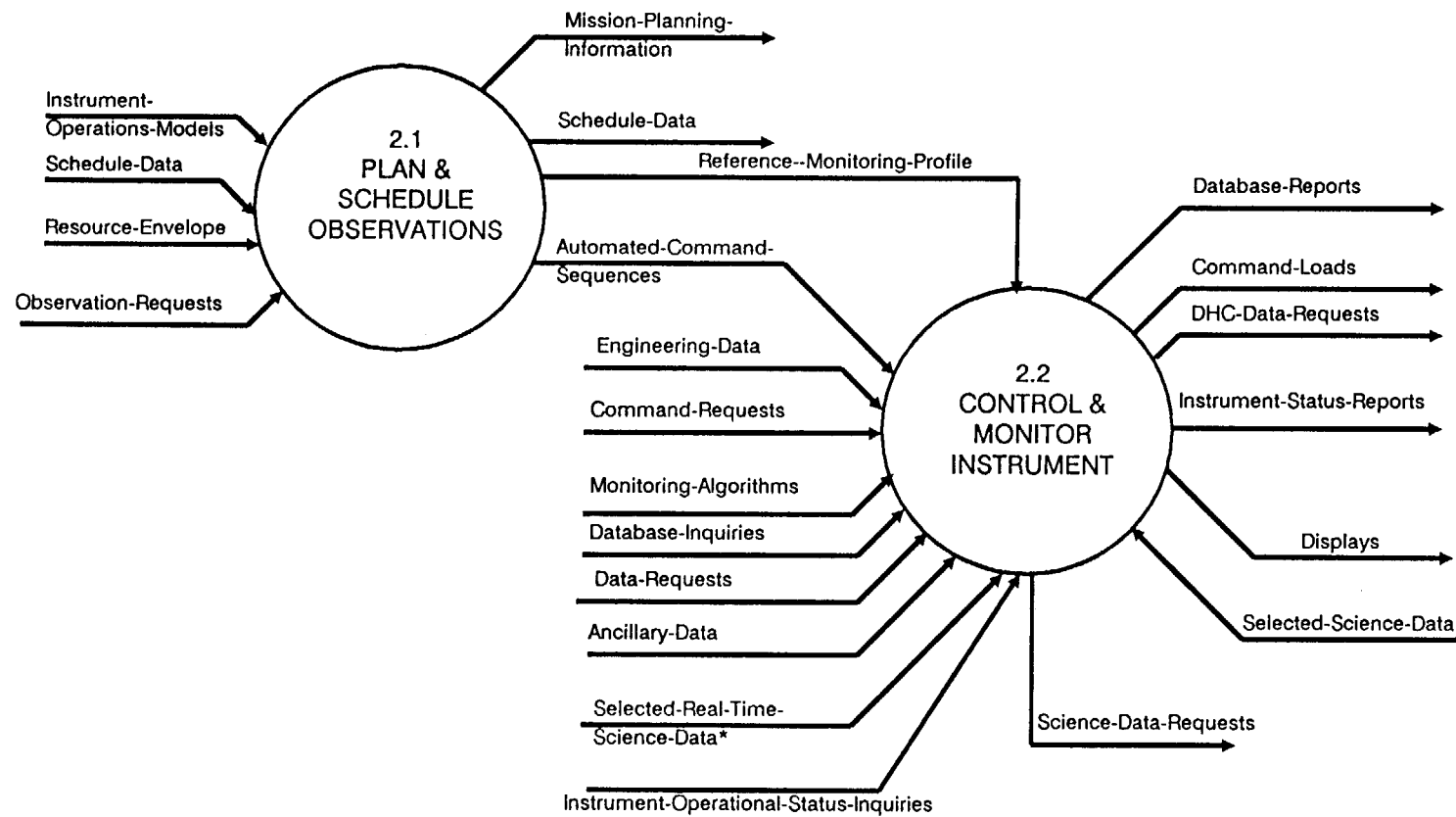


**DFD 1.2 Monitor Instrument Performance**



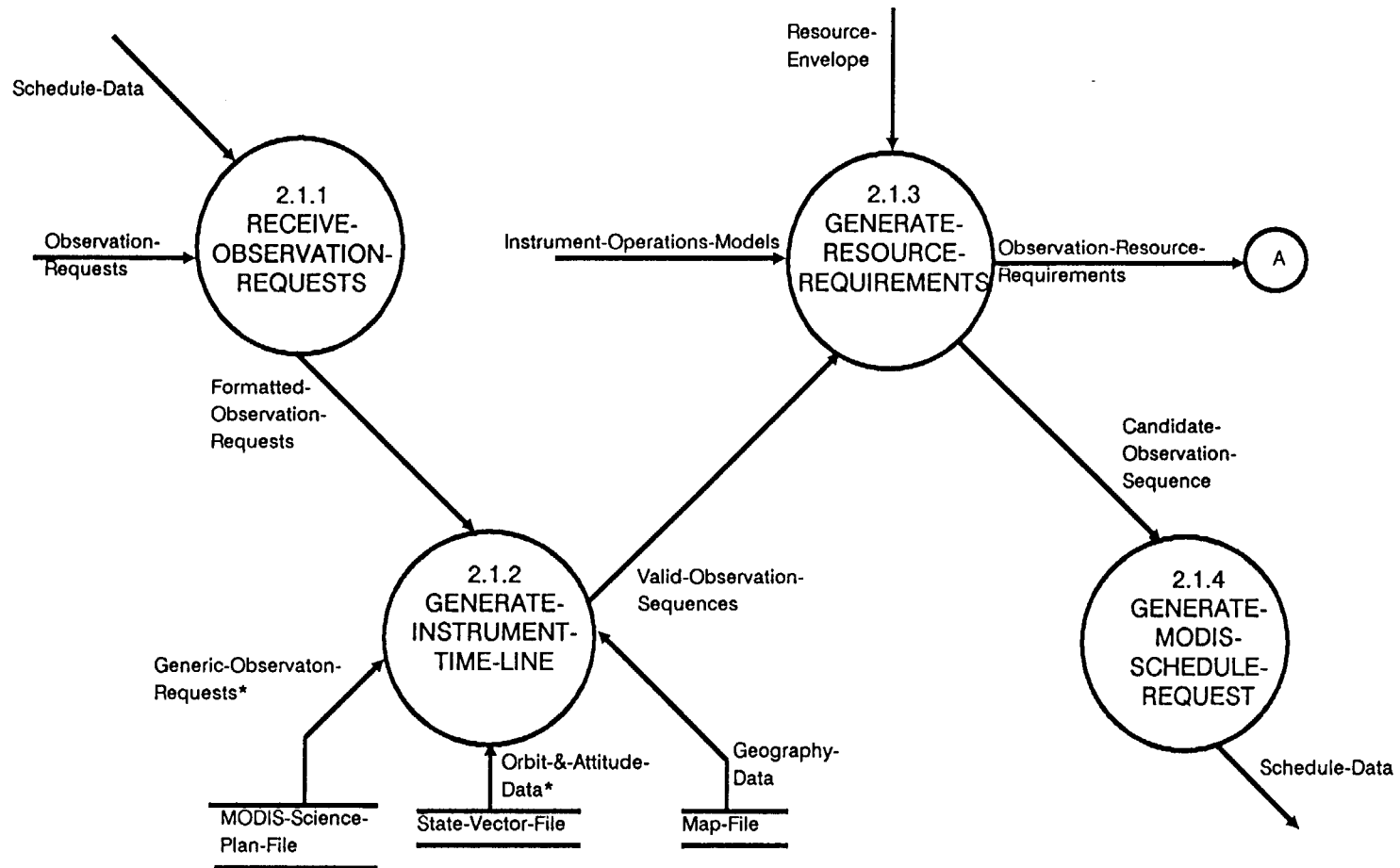
\* Issue under discussion

ICC Context Diagram



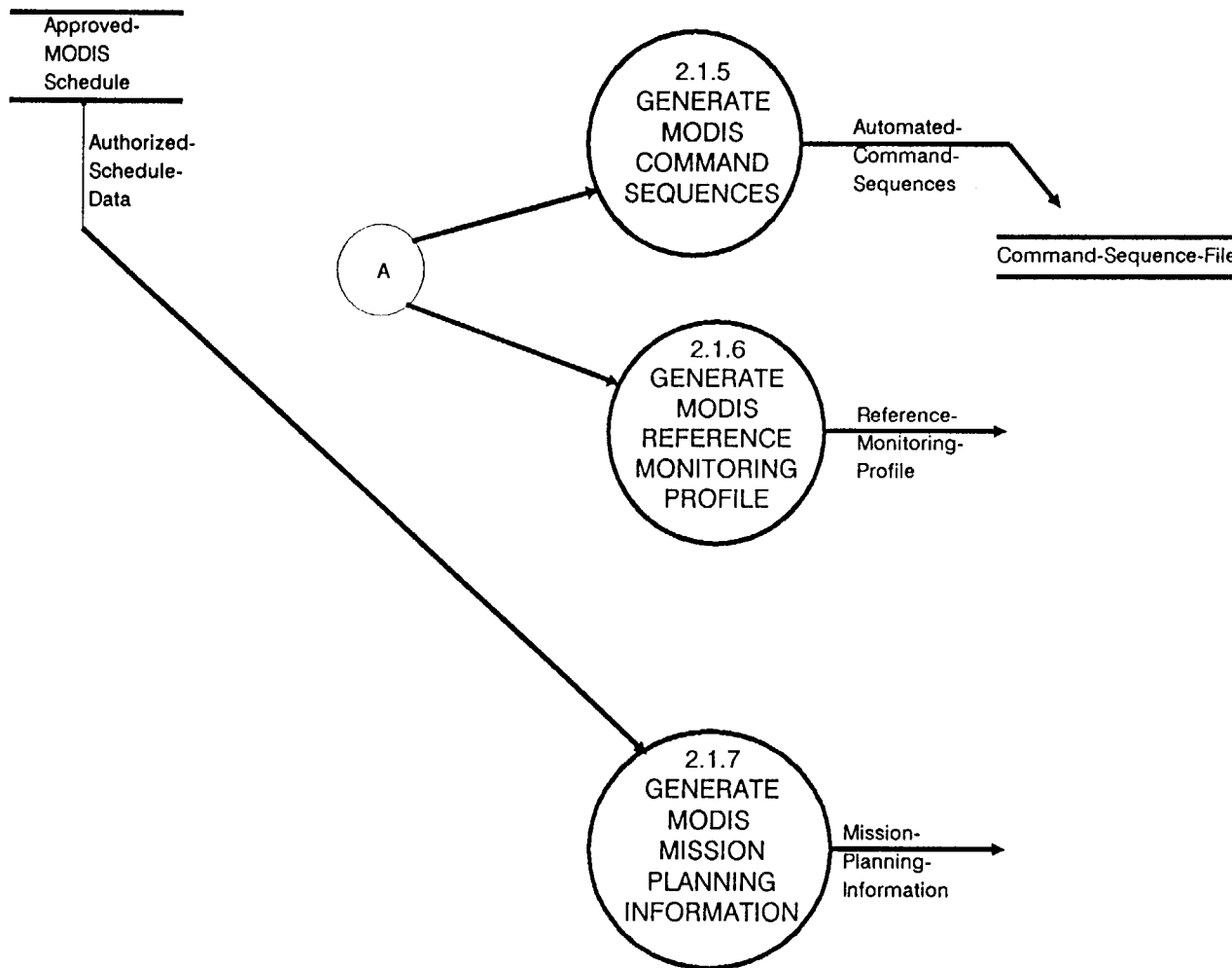
\* Issue Under Discussion

## DFD 2.0 ICC Functional Data Flows

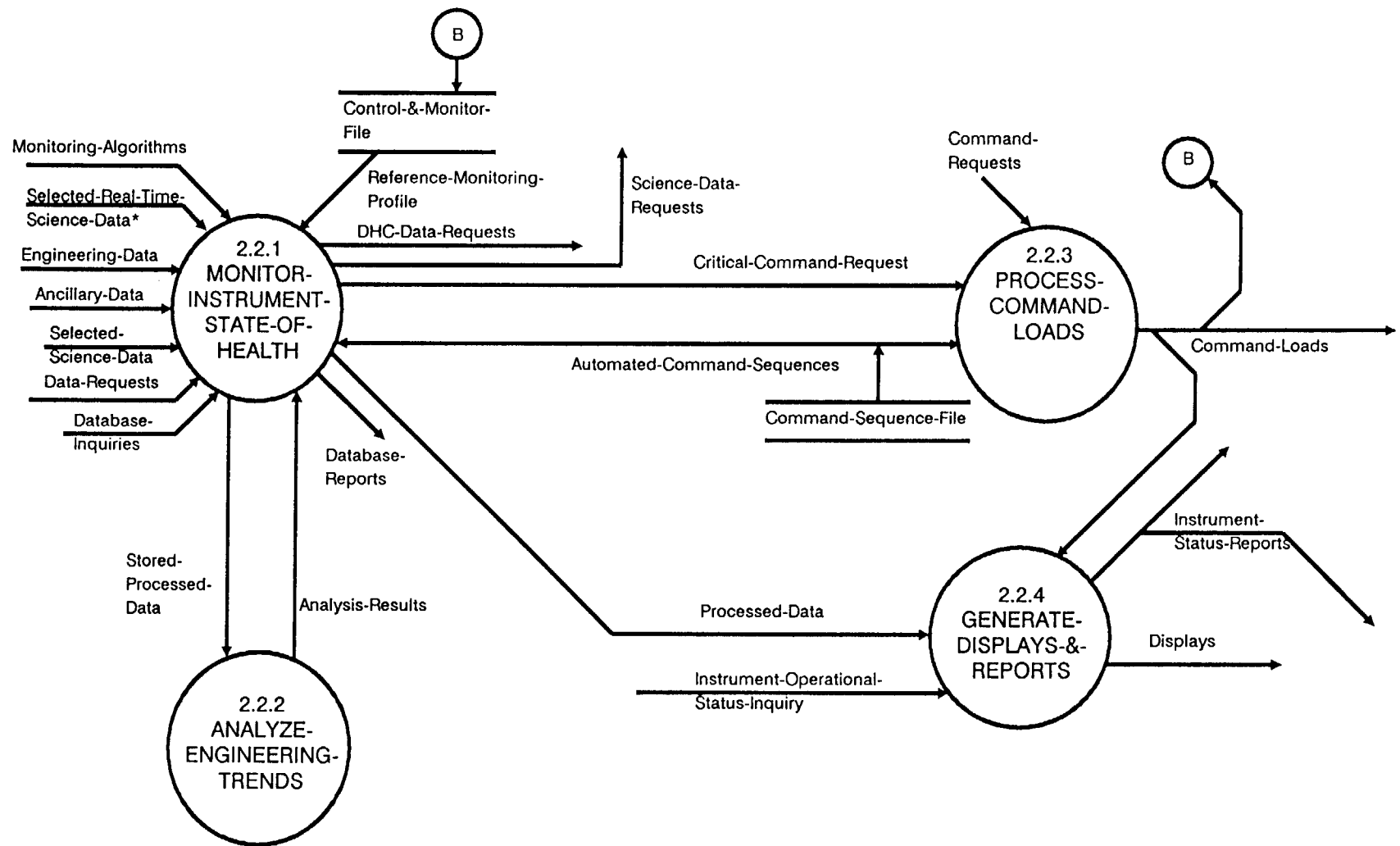


\*Tentative. Issue under discussion.

**DFD 2.1 Plan and Schedule Observations (1 of 2)**

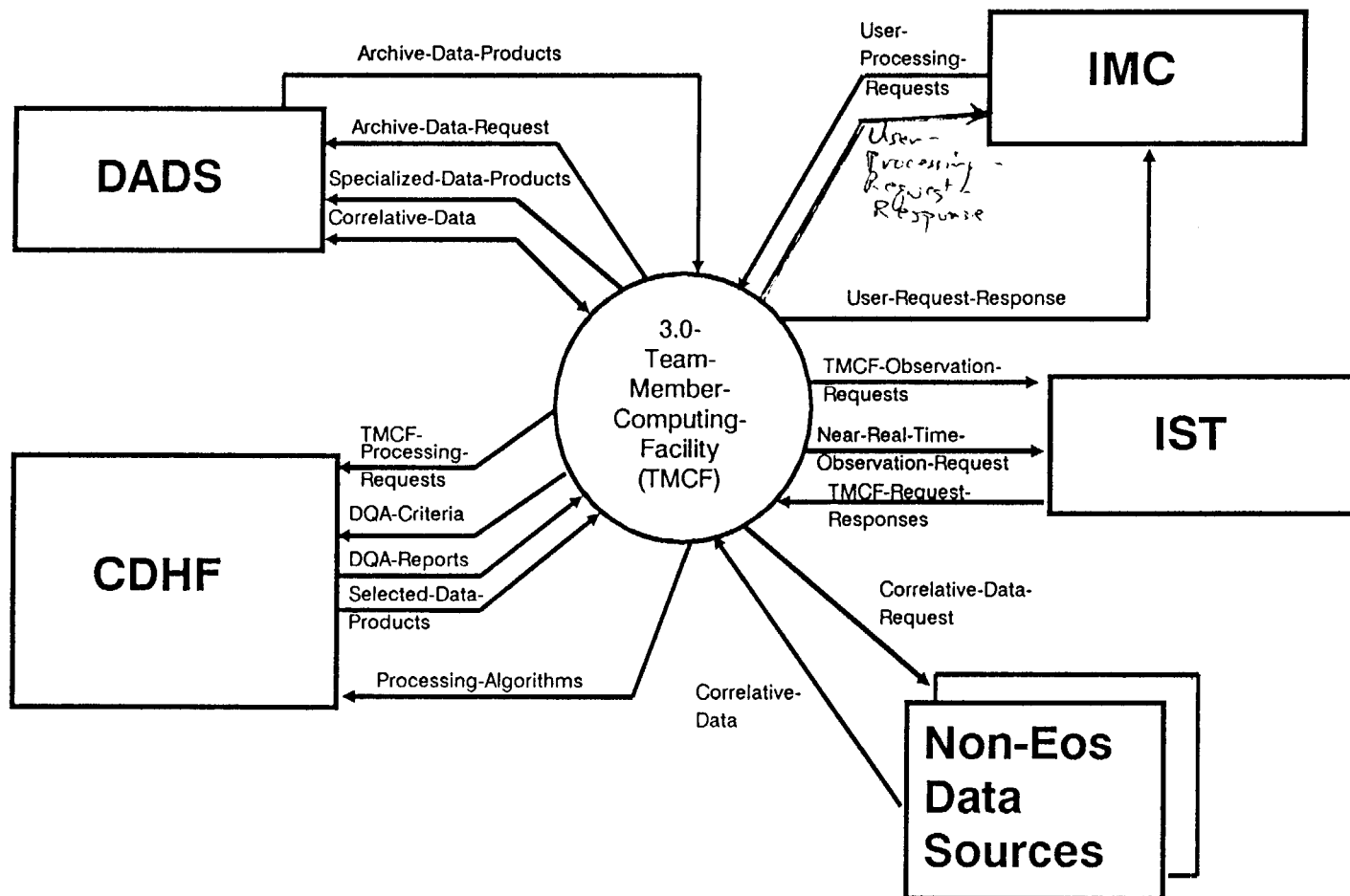


**DFD 2.1 Plan and Schedule Observations (2 of 2)**

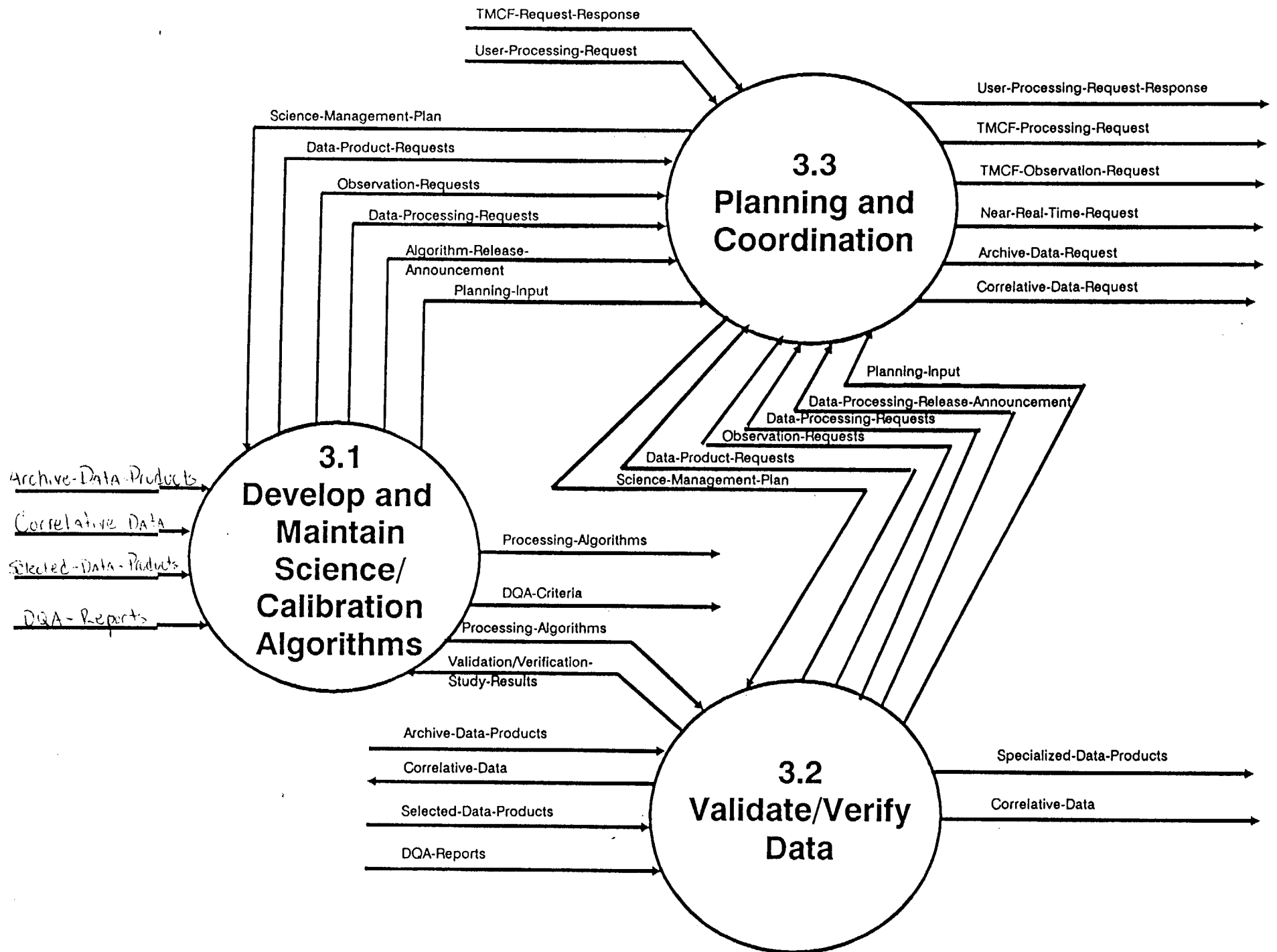


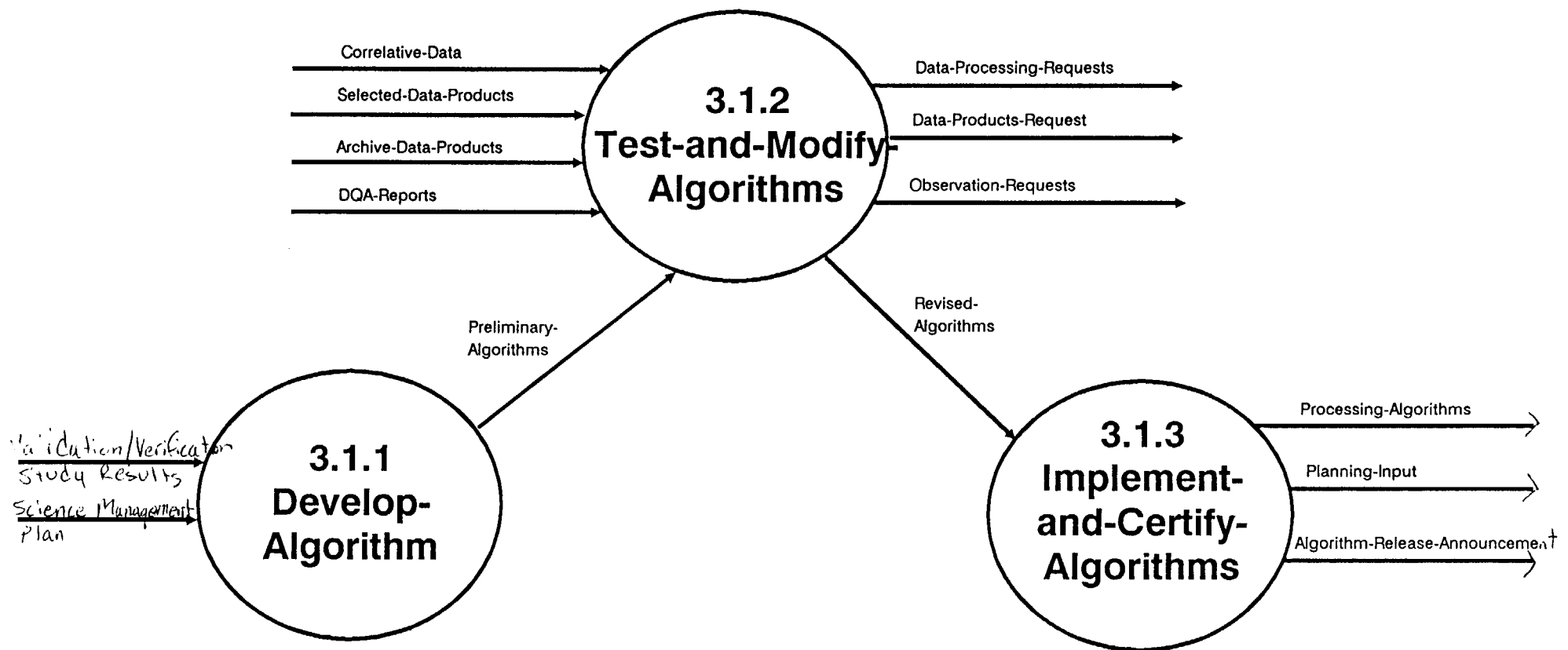
\* Issue Under Discussion

**DFD 2.2 Control and Monitor Instrument**

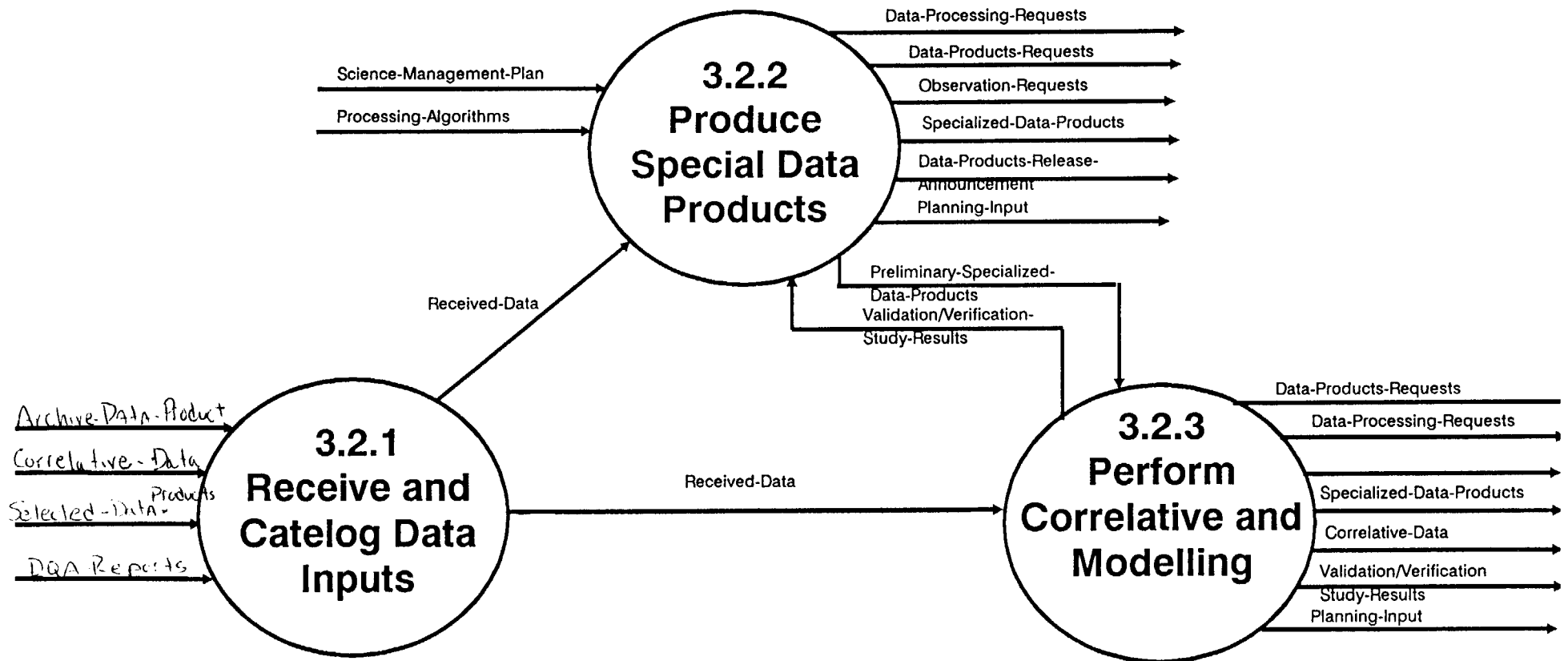


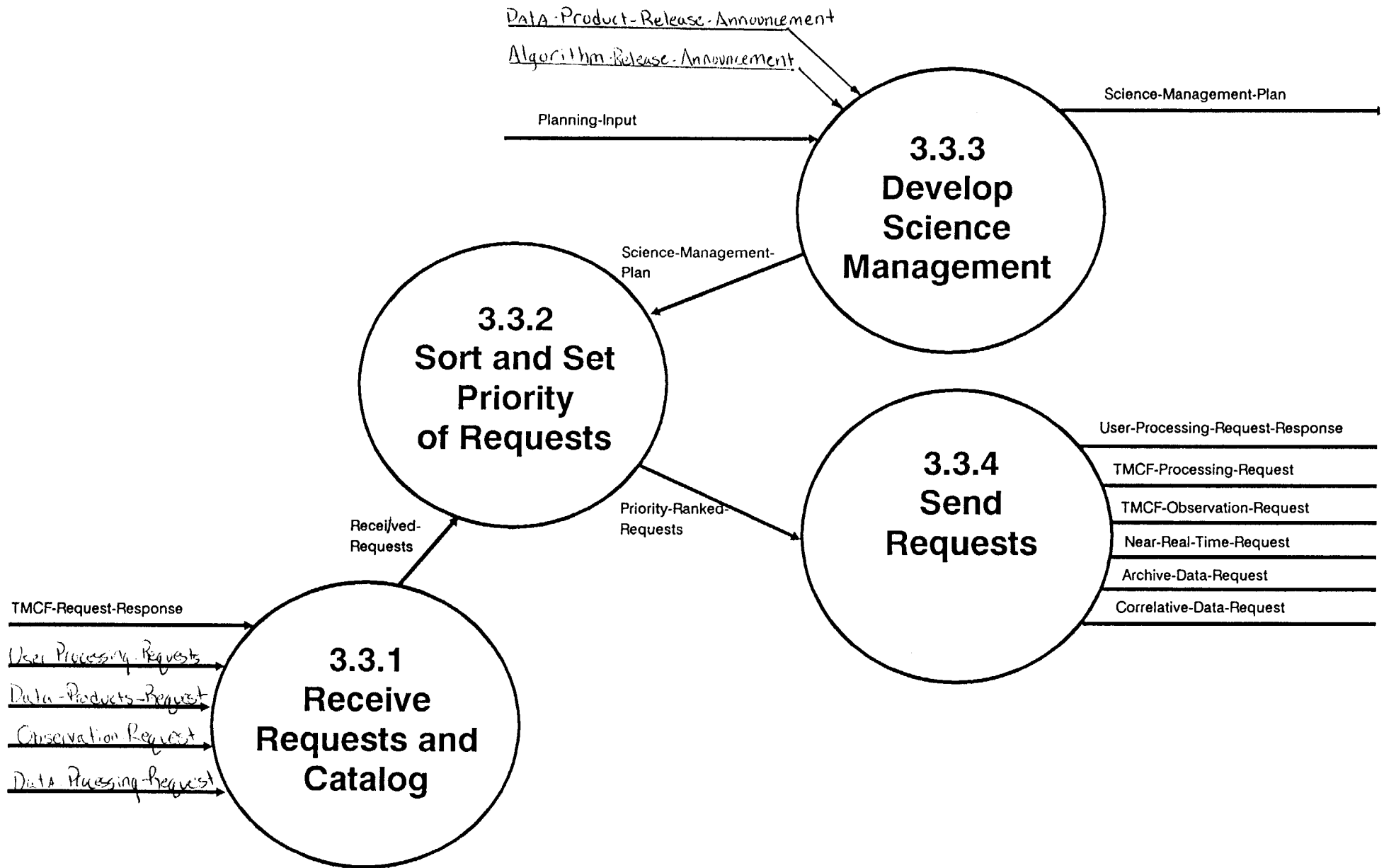
**TMCf Context Diagram**



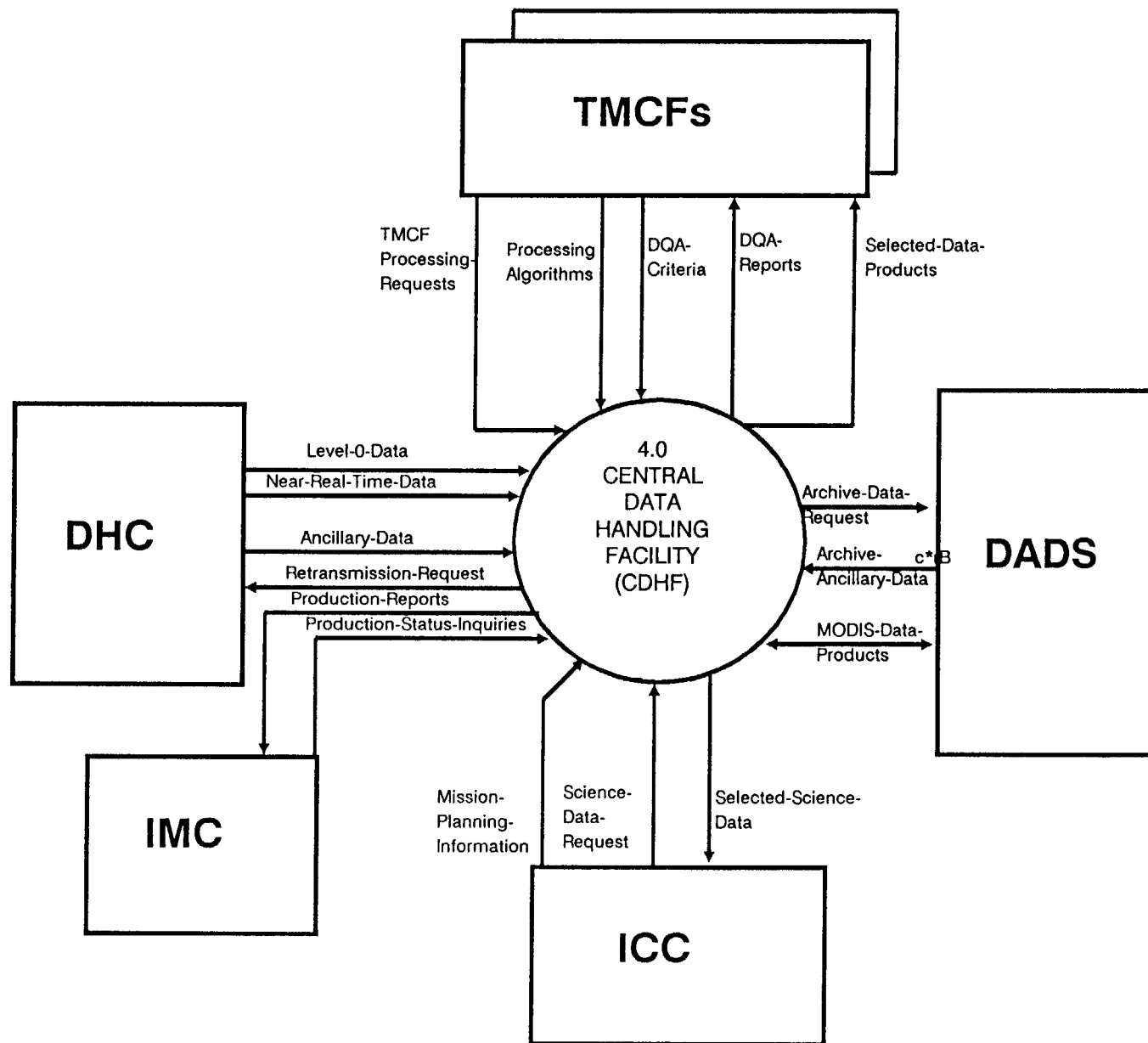


**DFD 3.1 Develop and Maintain  
Science/Calibration Algorithms**

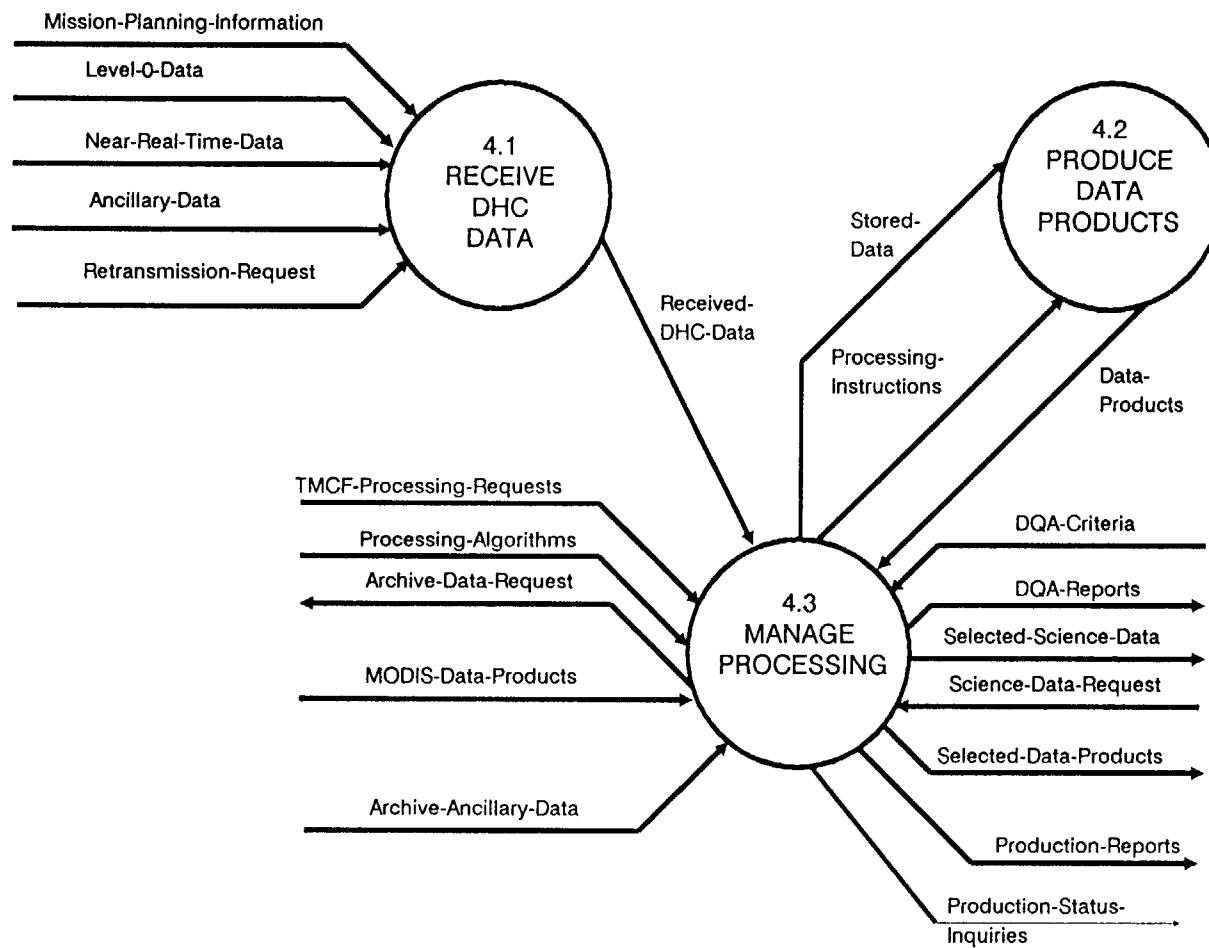




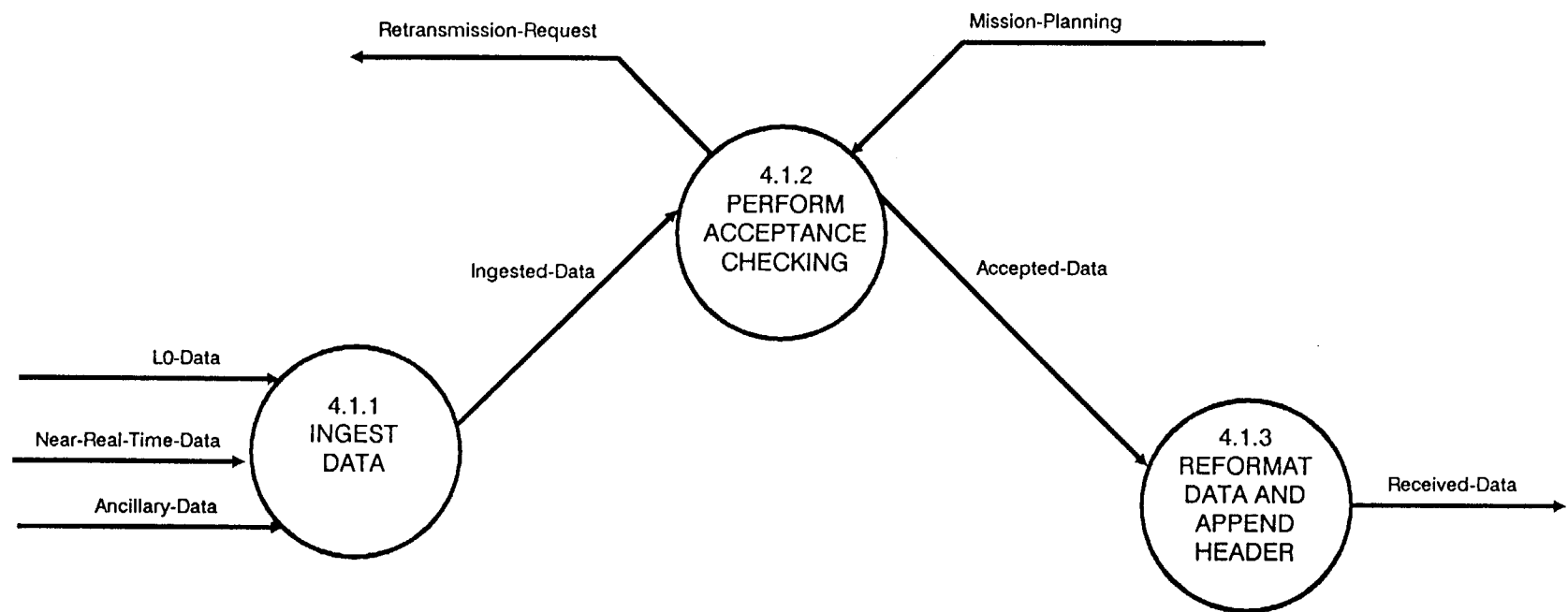
**DFD 3.3 Plan and Coordinate Support**



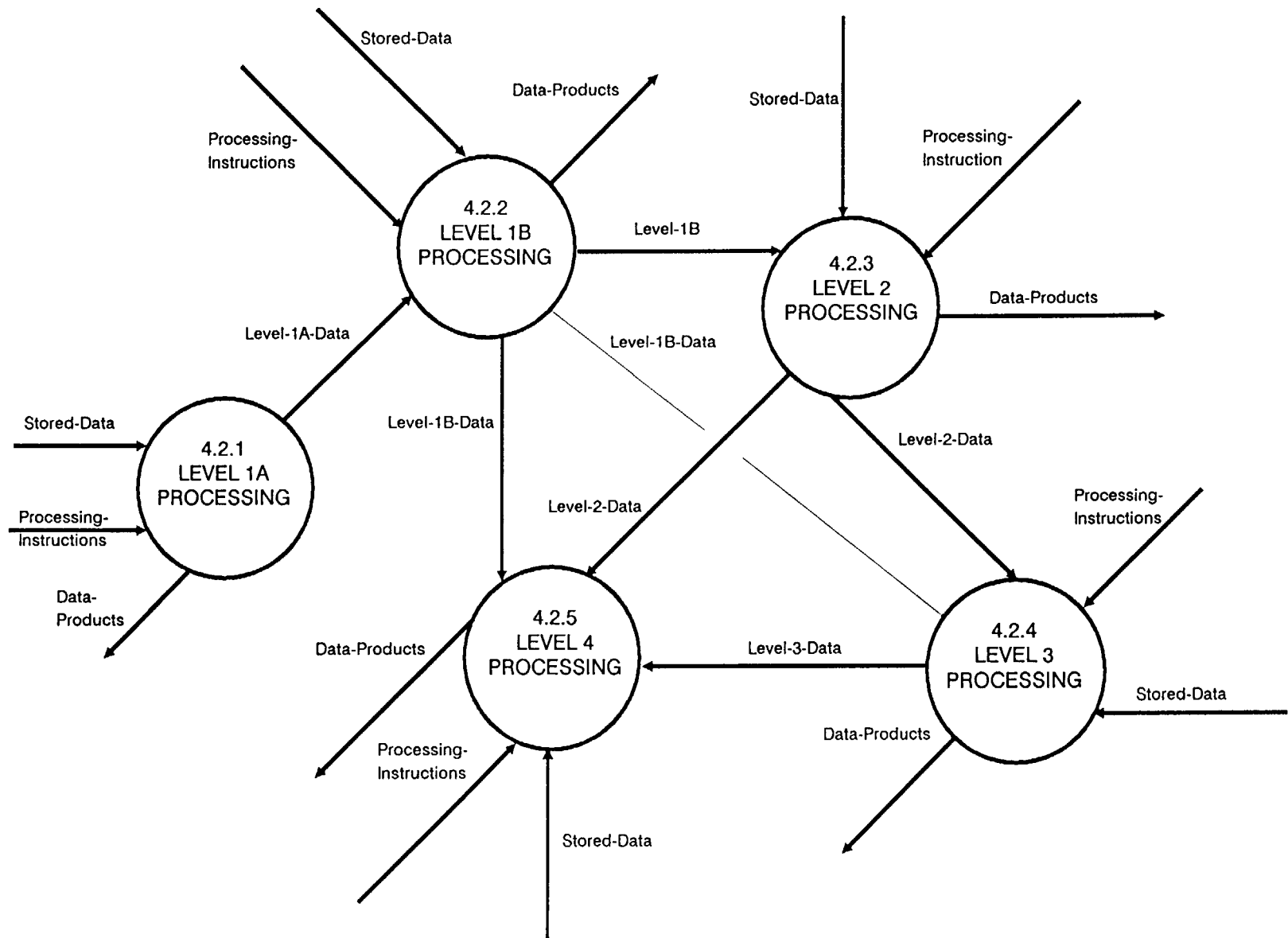
**CDHF Context Diagram**



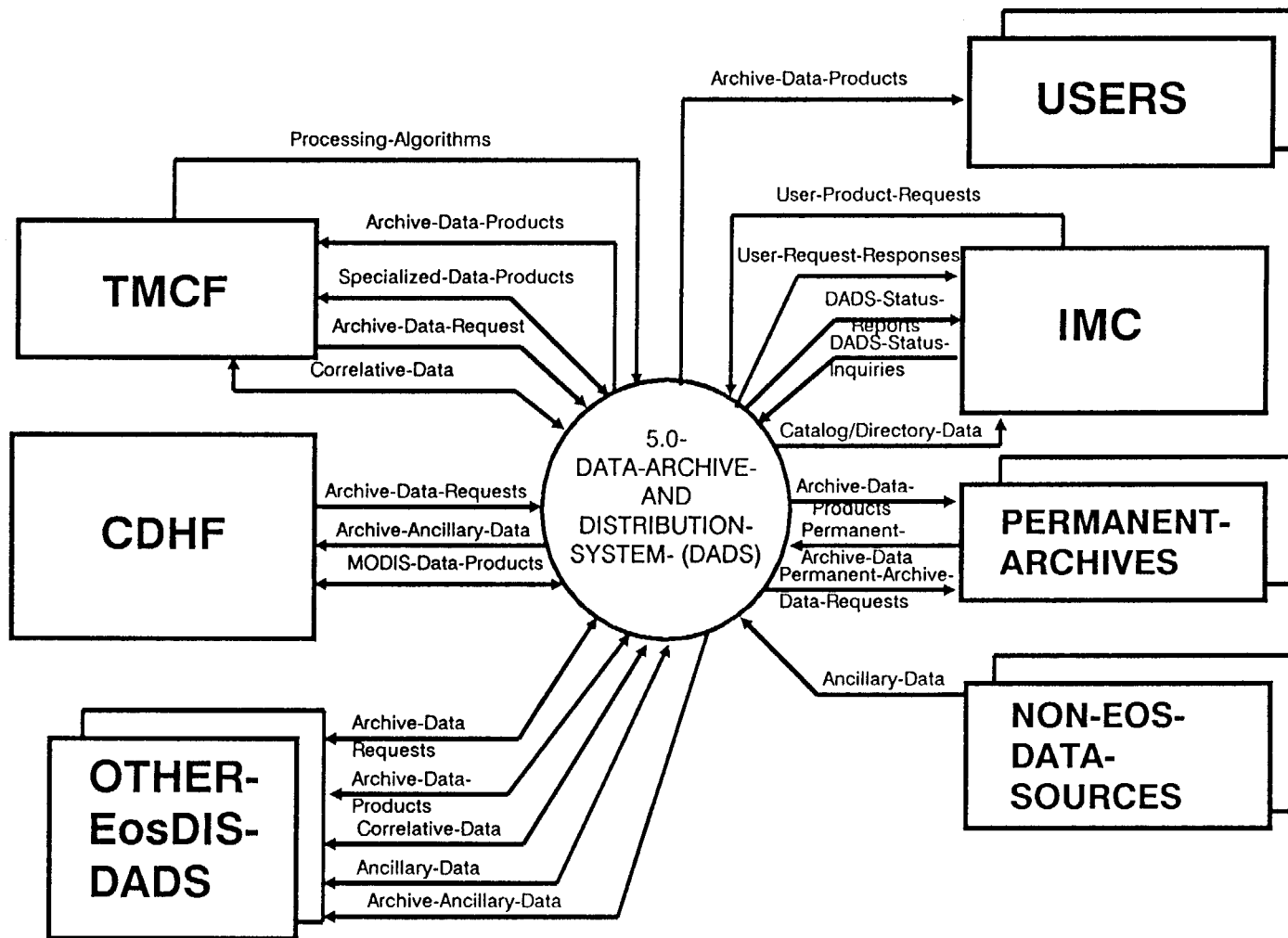
**DFD 4.0 CDHF Functional Data Flows**



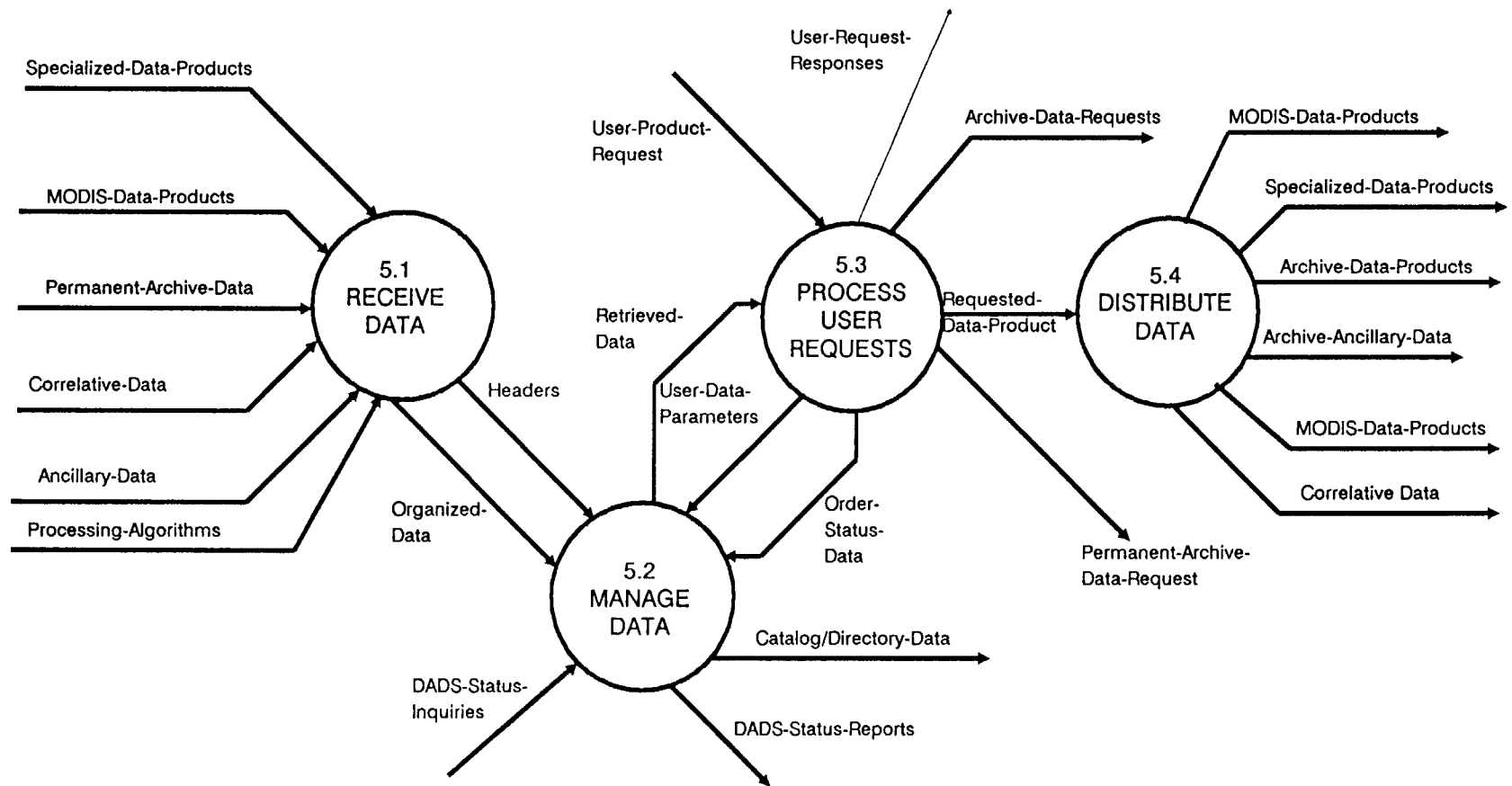
**DFD 4.1 Receive Data**



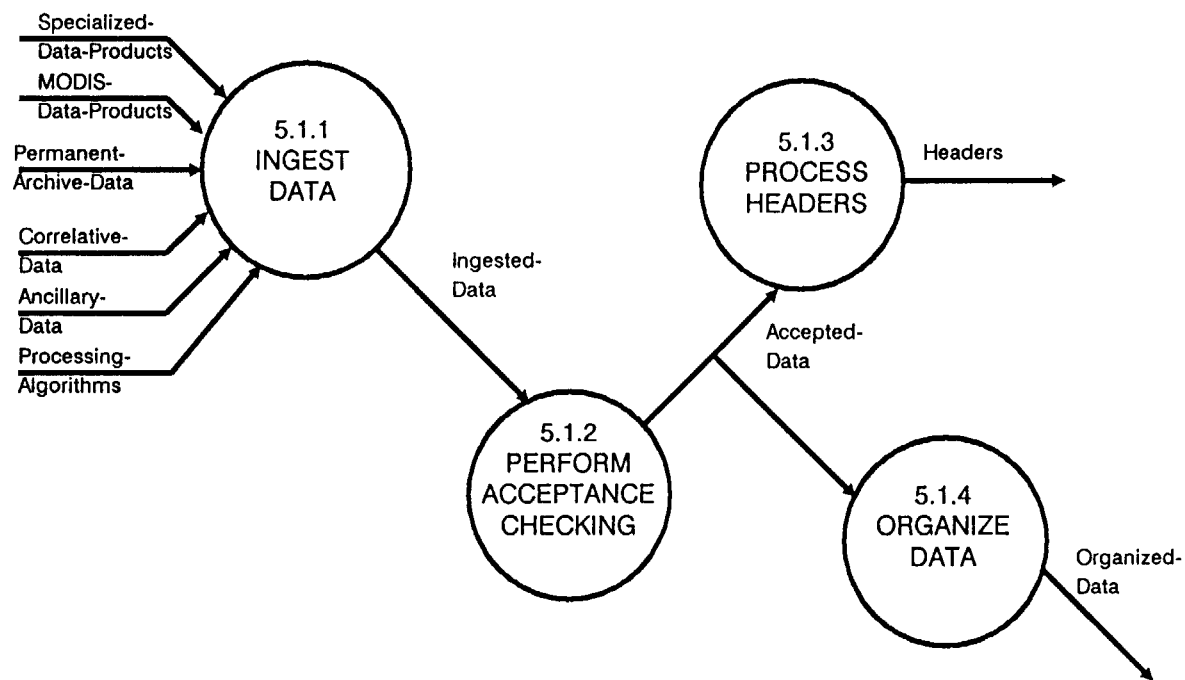
**DFD 4.2 Produce MODIS Data Products**



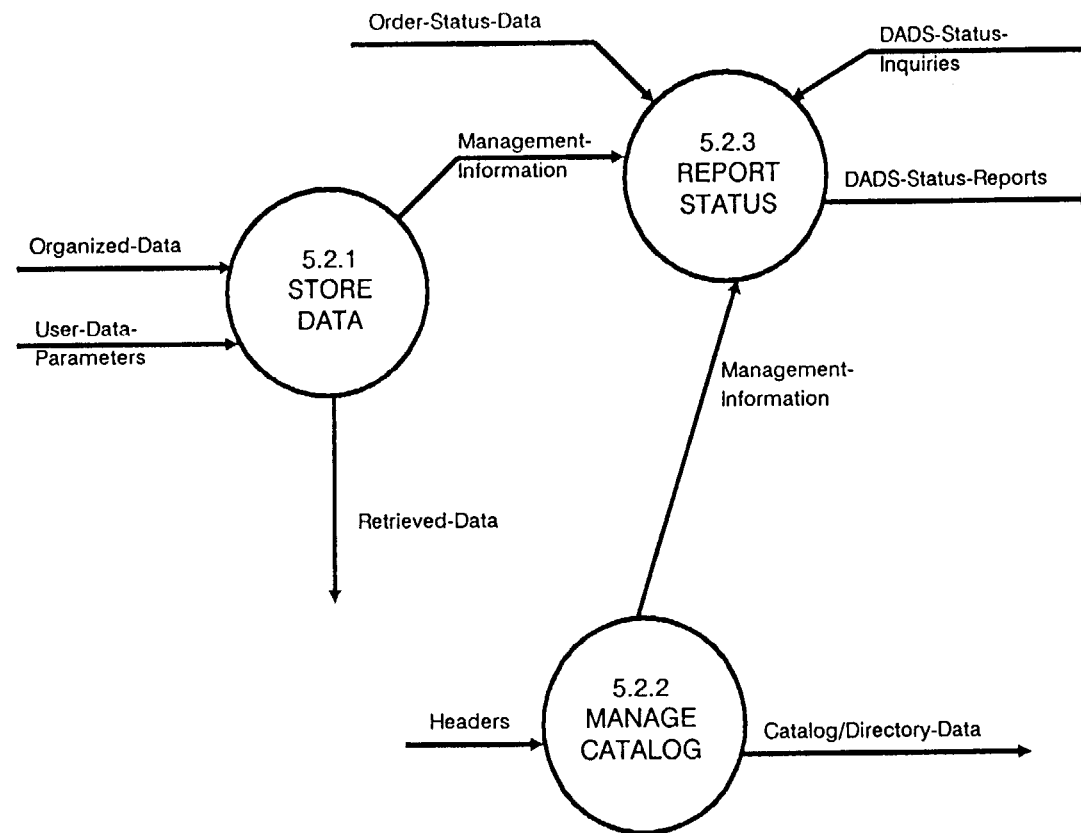
**DADS Context Diagram**



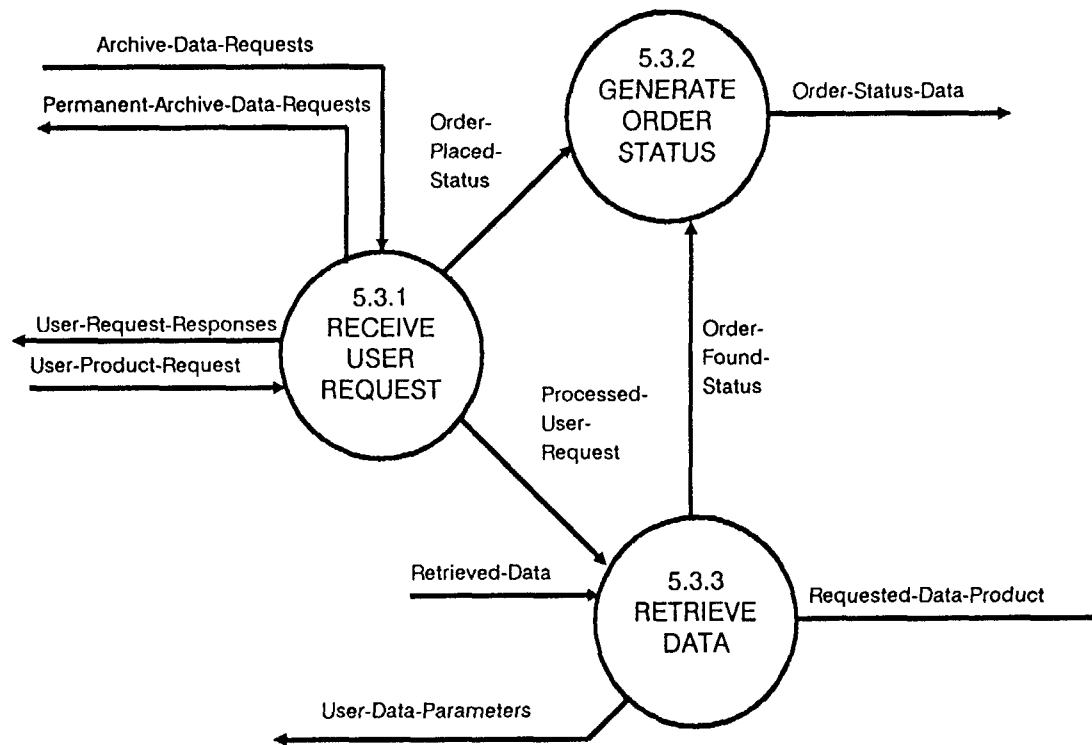
**DFD 5.0 DADS Functional Data Flows**



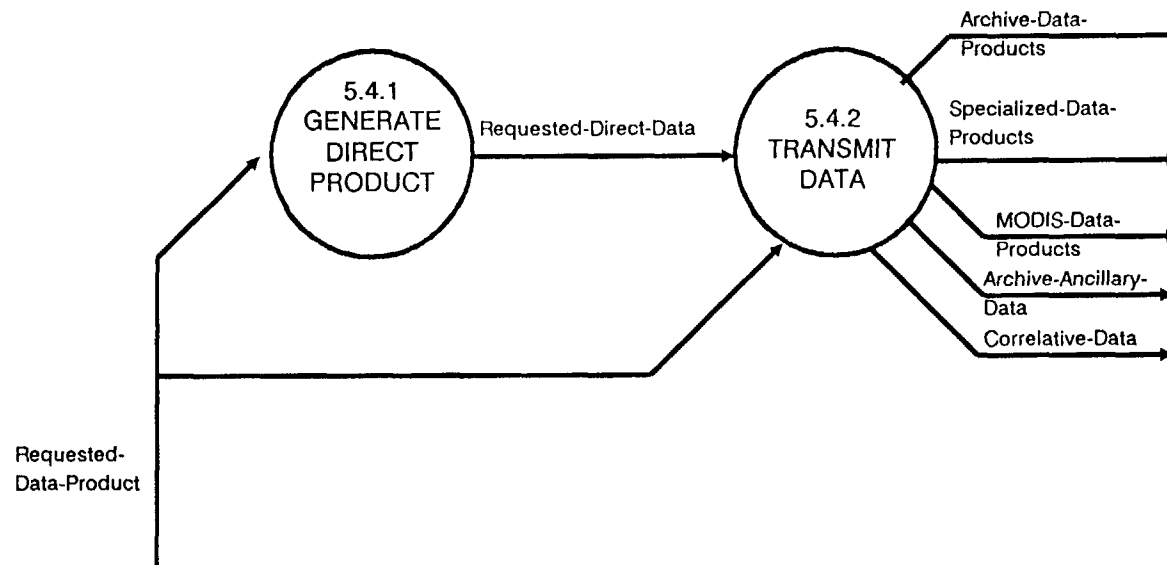
**DFD 5.1 Receive Data**



**DFD 5.2 Manage Data**



**DFD 5.3 Process User Requests**



**DFD 5.4 Distribute Data**

## DATA DICTIONARY

Algorithm-Release announcement	=	*announcement that a debugged, working processing algorithm is now in use, containing information such as version numbers, availability of user's guide, etc.*
Ancillary-Data	=	*Data other than MODIS-Instrument- Data required to perform MODIS data processing. [They include orbit data attitude data, time informa- tion, spacecraft or platform engineering data (e.g., pointing information, optics temperature, structure temperature, instrument mounting alignment), calibration data, data quality information, and data from other instruments (e.g., cloud information derived from a second instrument, status of items in a second instrument which could create interference with the instrument data being processed, map data, atmosphere temperature grids).]*
Archive-Ancillary-Data	=	*Ancillary data retrieved from the MODIS DADS, other DADS, or Permanent Archive.*
Archive-Data-Products	=	*MIDACS products routinely archived for potential user access and distributed in response to a product request.*
Archive-Data-Request	=	*A request for data to be retrieved from any EosDIS DADS.*
Catalog/Directory-Data	=	*Listings of data available from the MIDACS DADS listed by platform, instrument, data processing level, algorithm identifier, parameter, time, geographic location, or combination.

Command-Loads	=	*Encoded MODIS instrument command sequences as required by the on-board MODIS instrument control system and constructed so as to affect a specific action; e.g., "HV PWR ON"..."
Command-Request	=	*A command load generated by the IST, verified by, and immediately transmitted by the ICC.*
Correlative-Data	=	*Scientific data not from the MODIS instrument used to verify, interpret, or validate MODIS data products.*
Correlative-Data-Request	=	*Information required to initiate and support the transfer of Correlative-Data to the requestor.*
DADS-Status-Inquiry	=	*Request for a specific type of DADS-Status-Report.*
DADS-Status-Report	=	*Description of the DADS status, resources utilization, and performance.*
Data-Products-Release-Announcement	=	*Announcement that a validated specialized or correlative data product is available to the scientific community.*
Database-Inquiry	=	*Inquiry of the monitoring database to determine what instrument monitoring reports, data, and analysis are currently available.*
Database-Report	=	*Report of instrument monitoring functions and availability.*
Data-processing-request	=	*A request to perform a special data processing or start a new standard data processing.*
Data-Product-Requests	=	*Data request*

Data-Request	=	*A request for information, data, or data products. General context is requested data may be on-line and may be shopped-for or browsed after electronically. The accounting for such data availability, transfer and/or use, may be different from that of a product order which may come from an element external to MIDACS.*
DHC-Data-Request	=	*Redesignation of packet handling and processing priorities.*
Displays	=	* Plots, images, a list of requested data or status of the instrument or ground system communicated visually.*
DQA-Criteria	=	*Factors used to assess data quality.*
DQA-Reports	=	*Results of routine data quality assessment associated with data receipt and data product operations.*
Engineering-Data	=	MODIS-Engineering-Data + Platform-Engineering-Data.
Headers	=	*Information about the attributes of standard, non-standard, or data products.*
IMC-Inquiry	=	*Request for information on the operational status of the MODIS instrument or the MIDACS data system.*
	=	Production-Status-Inquiries + DADS-Status-Inquiries + Science-Plan-Inquiry + Instrument-Operational-Status-Inquiries
IMC-Inquiry-Response	=	Production-Reports + DADS-Status-Reports + Mission-Planning-Information + Science-Plan-Information

Instrument-Operations-Models	=	*Computer-compatible mathematical equivalents of the MODIS instrument, used to estimate resource requirements during a modeled operation.*
Instrument-Status-Report	=	*Information on the operating configuration of the MODIS instrument.*
Level-0-Data	=	*MODIS-Instrument-Data at original resolution, time order restored, with duplicates removed.*
Mission-Planning-Information	=	*Instrument operations schedule; information provided by the ICC to the CDHF required to verify receipt of complete data sets.*
MODIS-Data-Products	=	Levels 1-4 Data Products + Browse Data
MODIS-Engineering-Data	=	*Data other than MODIS-Science-Data generated within the MODIS instrument.*
MODIS-Instrument-Data	=	*Data originating within the MODIS instrument.*
	=	MODIS-Science-Data + MODIS-Engineering-Data
MODIS-Science-Data	=	*Unprocessed radiance observations as generated by the MODIS instrument.*
Monitoring-Algorithms	=	*A procedure (or recipe) for transforming information into a different state to accommodate a specific data interpretation.*
Near-Real-Time-Data	=	*MODIS-Instrument-Data designated for Priority Processing.*
Near-Real-Time-Request	=	*Request to handle data in Priority Mode.*
Non-Standard-Products	=	*Products not routinely produced, standard products produced by an alternate algorithm, or combinations of standard products.*

Observation-Request	=	*MODIS measurement request not covered by the current schedule or data handling procedures. The request is consistent with general science objectives and science mission plans and goals.*
Order-Status-Data	=	*Status and billing of the product ordered through IMC.*
	=	Order Found Status
	+	Order Placed Status
Organized-Data	=	*Data products which have been grouped according to the header, e.g., Level 1A data, Land data, or Ocean data.*
Permanent-Archive-Data	=	*Data retrieved from permanent archival storage.*
Permanent-Archive-Data-Request	=	*Request for data from the permanent archive.*
Planning-Input	=	*Information supplied to the Team Leader by the Team Members used to develop the Science Management Plan.*
Platform-Engineering-Data	=	*Data produced by the platform sensors that are used for operating the platform or as ancillary data.*
Preliminary-Algorithms	=	*Recently developed algorithms which have not been fully tested.*
Preliminary-Specialized-Data-Products	=	*Specialized data products which have not yet been validated or verified.*
Priority Processing	=	*Immediate processing of designated data items without considering data item position in processing queues. Cf. Routine Processing.*
Priority-Ranked-Requests	=	*Received requests which the team leader has given priority ranking in concordance with the science Management Plan.*

Processing Algorithms	=	Scientific Algorithms + Calibration Algorithms + Special Algorithms
Production-Report	=	Production Schedule + Production Status
Reference-Monitoring- Profile	=	*Expected MODIS instrument engineering parameter levels annotated with limits at which alarm status should be declared.*
Received-Data	=	*Data stored at the TCMF's used for algorithm development and validation/verification of data.*
Received-Requests	=	*A data products request, observa- tion request, or data processing request received by the Team Leader from Team Members in TCMF.*
Resource-Envelope	=	*Maximum allowable resource consump- tion levels for the MODIS instru- ment.*
Retransmission Request	=	*Request for retransmission of data packets that do not meet quality standards.*
Retrieved Data	=	*Data retrieved from DADS storage by the Process-User-Request function to fill a product order.*
Revised-Algorithms	=	*Algorithms which have been tested but are not yet ready for release.*
Routine Processing	=	*Processing that considers data item position in data processing queues. Cf. Priority Processing.*
Schedule-Data	=	*English language descriptions of planned platform maneuvers or instrument operations.*
Schedule-Response	=	"*Removed from charts one phase (consider as part of Science Management Plan)*"
Science-Data-Request	=	*Description of Selected-Real- Time-Science-Data used by the ICC to monitor MODIS instrument operation.*

Science-Data-Request	=	*A request for selected science data for monitoring instrument performance.*
Science-Management-Plan	=	*A plan which states the areas of responsibility of each Team Member developed by the Team Leader and Team Members.*
Science-Plan-Coordination	=	*Information exchange between a user requesting special MODIS services and the MODIS Instrument Team Leader. The exchange should culminate in a plan for MODIS Instrument Operation.*
Science-Plan-Information	=	*Scientific descriptions of the intent of MODIS instrument operations.*
Selected-Data-Products	=	*Subsets of standard, near-real-time or specialized data product.*
Selected-Real-Time-Science-Data	=	*A subset of MODIS-Science-Data used to monitor MODIS instrument performance.*
Selected-Science Data	=	*A subset of MODIS-Science-Data used to monitor MODIS instrument performance. These data are transmitted to the ICC by the CDHF to analyze past instrument performance and are not used for real-time monitoring.*
Selected-Science-Data	=	*In response to a request, selected science data will be issued for monitoring instrument performance. Selected data may be of specific channels, time, packets, etc.*
Special-Observation-Request	=	*An observation request which requires alteration at previously established observation plans.*
Specialized-Data-Products	=	*Data products which are considered part of a specific research investigation and are produced for a limited region or time period, or data products which are not accepted by the project as standard items.*

TMCF Observation Request	=	*Request by a TMCF member to execute a MODIS observation sequence.*
TMCF-Processing-Request	=	Standard-Processing-Requests + Reprocessing Requests + Data-Base-Inquiry + Selected-Data-Request + Product-Release-Request
TMCF-Request-Response	=	*Response of the ICC to a TMCF-Processing-Request.*
User-Observation-Request	=	*A special observation request not included in the current schedule but consistent with general science objectives and the science mission plan.*
User-Processing-Request	=	*Request by a User to generate MODIS-Data-Products not previously available.*
User-Product-Request	=	*Requests that distributed data products be delivered to a User from the MIDACS DADS.*
User-Request	=	User Product Request + User Observation Request + User Processing Request.
User-Request-Response	=	*Response to a user's request.*
Validation/Verification-Study-Results	=	*Results of the analysis of a specialized data product or correlative data which determine if the product is validated or verified.*

9/29/88

IST/ICC DATA DICTIONARY ADDITIONS

Analysis\_Results = \*Results of analysis of instrument performance over a long period which reflects trends in performance.\*

Authorized\_Schedule\_Data = \*A schedule containing instrument resources and timelines, that have been approved by the EMOC through iteration with the ICC.\*

Automated\_Command\_ Sequences = \*A human readable sequence of commands generated by the planning and scheduling processes and used from the generation of command loads.\*

Candidate\_Observation\_ Sequence = \*A human readable form of the instrument resources and timeline necessary to perform the observation request. This data is sent to the EMOC for approval.\*

Coordinated\_Observation\_ Plan = \*Any data received by the IST which has been selected as a observation request which has been coordinated to determine its consistency with the Eos science objectives.\*

Critical\_Command\_Request = \*A command request issued by the monitoring function when the state-of-health of the instrument or its performance is degraded.\*

Data\_Request = \*A request for information, data, or data products. General context is requested data may be on-line and may be shopped-for or browsed after electronically. The accounting for such data availability, transfer and/or use may be different from that of a user product request which may come from an element external to MIDACS.\*

Formatted\_Observation\_ Request = \*Any observation request received by the ICC that has been processed for input into the generation of instrument timelines.\*

Generic\_Observation\_ Request = \*Observation request that are predetermined and are consistent with the original science plan.\*

Geography\_Data = \* Data that can be used to identify

land and ocean boundaries or other Earth features necessary for the implementation or generation of the instrument commands. Used in generating instrument timelines\*

Instrument\_Operations\_Status\_Inquiry = \*An inquiry made by the IMC to determine the status of the ICC and/or the MODIS instrument. The status will be available to users.\*

Observation\_Planning\_Data = \*Any data received by the IST which has been selected as a possible observation request which will undergo coordination to determine its consistency with the Eos science objectives.\*

Orbit\_&\_Attitude\_Data = \*Data that describes the current or predicted orbital position and pointing of the platform or instrument axes.\*

Observation\_Resource\_Requirements = \*Predicted instrument resources necessary to fulfill the objectives of the observation request.\*

Processed\_Data = \*Results of analyzing engineering data in real-time or trend analysis functions.\*

Science\_Plan\_Information = \*Information on the IWG coordinated science plan that will be implemented by the ICC. This information is distributed to the IMC via the team leader.\*  
The science plan may be a result of observation requests or may follow the original Eos science objectives. See schedule data also.\*

Status\_&\_Trending\_Data = \*Instrument engineering and/or science data that has been analyzed to determine the operating status of the instrument and long term trends. This data will be used to update any instrument models or algorithms used in analyzing engineering data.\*

Stored\_Processed\_Data = \*Data which has been processed in real-time and stored for analyzing long term trends in performance.\*

9/29/88

## DADS DATA DICTIONARY ADDITIONS

Accepted\_Data            \*DADS Ingested data that has been  
                             quality checked.\*

Accounting\_Information   \*Data related to the processing and  
                             distribution of archived data  
                             to users.\* *such as*  
                             // Data distributed,  
                             // Number of times accessed,  
                             // Types of data Accessed, *and*  
                             // Catalog and resource usage

Algorithms               \*A mathematical procedure used by the  
                             CDHF or the TMCf to  
                             process the MODIS data.\*

Archived\_Ancillary\_Data   \*Ancillary\_Data that has been previously  
                             archived, and has been request for use  
                             in processing or re-processing data.\*

Browse\_Data              \*Subsets of a data set other than the  
                             directory and metadata that  
                             facilitates user selection of specific  
                             data having the required characteristics.  
                             For example, image data of a single  
                             channel with degraded resolution.\*  
                             =     image data  
                             +     subset of data

DADS\_Status\_Inquiry      \*An inquiry made by the IMC to  
                             determine the DADS system status,  
                             performance, and order status.

DADS\_Status\_Report       \* A report of the resource utilization  
                             and system performance.\*  
                             =     Status of the DADS system  
                             +     Accounting Information  
                             +     Ingested Data  
                             +     Management Information  
                             +     Order Status Data  
                             +     Status

Documentation            \*Includes a concise description of  
                             algorithms, instrument specifications,  
                             the nature of physical variables,  
                             noise characteristics, and  
                             internal and external history.  
                             All sources of calibration information,  
                             procedures, and results including  
                             annotated bibliographies of all  
                             pertinent papers and reports.\*

Ingested_Data	<p>*All products and data received by the DADS.*</p> <ul style="list-style-type: none"> <li>= MODIS_Data_Products</li> <li>+ Specialized_Products</li> <li>+ Permanent_Archived_Data</li> <li>+ Correlative_Data</li> <li>+ Ancillary_Data</li> <li>+ Processing_Algorithms</li> </ul>
Management_Information	<p>* Internal information about the DADS data store and catalog.*</p>
MODIS_Data_Products	<p>*Products produced or sent to the DADS routinely by the CDHF. Also, any MODIS data sent to the CDHF from the DADS in response to a data request.*</p> <ul style="list-style-type: none"> <li>= L1 - L4 data products</li> <li>+ MODIS Ancillary data</li> <li>+ Calibration parameters</li> <li>+ Documentation</li> <li>+ Browse Data</li> </ul>
Order_Found_Status	<p>*Status of the product order when located and retrieved. This information can be sent to the user via the IMC.*</p>
Ordered_Products	<p>*Products distributed on physical medium to users.*</p>
Order_Placed_Status	<p>*Status of the Product Order when the user request has been processed. This information can be sent to the user via the IMC.*</p>
Processing Algorithm	<p>*Data sent to the DADS by the TMCF.*</p> <ul style="list-style-type: none"> <li>= Algorithms</li> <li>+ Supporting_Documentation</li> <li>+ DQA_Criteria</li> </ul>
Processed_User_Request	<p>*Data request that has been processed by the Receive User Request function and is used to locate and retrieve the data.*</p>
Requested_Data_Products	<p>* Data retrieved by the Process User Request function for distribution on a physical medium.*</p>
Requested_Direct_Data	<p>*Products generated on physical medium for distribution.*</p>
Specialized_Data_Products	<p>*Products not routinely produced such as those produced by the TMCF such as products produced by an alternate algorithm, combinations of standard products, or merged data sets</p>

User\_Product\_Request

\*Request for data by a user that  
is routed to the DADS via the IMC.\*

User\_Data\_Parameters

\* Parameters used to locate and retrieve  
data to respond to a data request.  
Parameters used to identify data type,  
location, etc. in order to access the  
data.\*

- 1.) SCIENCE MANAGEMENT PLAN --- SCIENCE TEAM TECHNICAL GOALS AND TIME TABLES.
- 2.) SCIENCE MANAGEMENT PLAN INPUT--- CONTRIBUTIONS TO THE SCIENCE MANAGEMENT PLAN RELATED TO ALGORITHM DEVELOPEMENT AND DATA PRODUCT VALIDATION.
- 3.) DATA PRODUCT REQUEST--- REQUEST FOR DATA PRODUCT TO BE PROCURED FORM DADS OR NON-EOS DATA SOURCE.
- 4.) DATA PROCESSING REQUEST--- REQUEST FOR PROCESSING TO BE PERFORMED BY THE CDHF.
- 5.) ALGORITHM RELEASE ANNOUNCEMENT--- ANNOUCEMENT TO TEAM AND OUTSIDE COMMUNITY OF AVAILABILITY OF ALGORITHM SOFTWARE PRODUCT.
- 6.) DATA PRODUCT RELEASE ANNOUNCEMENT--- ANNOUNCEMENT TO TEAM AND OUTSIDTE COMMUNITY OF AVAILABILITY OF DATA PRODUCT.
- 7.) SCHEDULE RESPONSE--- RESPONSE TO PROCESSING OR OBSERVATION REQUEST.
- 8.) PRELIMINARY ALGORITHMS--- ALGORITHMS IN EARLY DEVELOPEMENT
- 9.) MODIFIED ALGORITHMS--- ALGORITHMS TESTED AND READY FOR IMPLEMENTATION.
- 10.) RECEIVED DATA--- CATALOGED ARCHIVED DATA PRODUCTS, CORRELATIVE DATA, SELECTED DATA PRODUCTS, AND DQA REPORTS.
- 11.) PRELIMINARY SPECIAL DATA PRODUCTS--- UNVERIFIED SPECIAL DATA PRODUCTS.
- 12.) VALIDATION/VERIFICATION STUDY RESULTS--- RESULTS OF CORRELATIVE AND MODELING STUDIES.
- 13.) RECEIVED REQUESTS--- CATALOGED OBSERVATION, PROCESSING , AND

**DATA PRODUCT REQUESTS.**

**14.3 PRIORITY RANKED REQUESTS---RECEIVED REQUESTS RANKED BY  
PRIORITY ACCORDING TO SCIENCE MANAGAMENT PLAN.**

Ingested Data - Data received from the DHC that has been blocked by TBD methods.

Accepted Data - Data from the DHC that has undergone TBD data validation checks (eg. out of range, checksums, etc.)

Level 1A Data - Level 0 data which are reformatted reversibly, with Earth location, solar and instrument zenith angle, calibration data, and other ancillary data appended.

Level 1B Data - Level 1A data to which the radiometric calibration algorithms have been applied, perhaps irreversibly, to produce radiances or irradiances, and to which, the Earth-location, and zenith-angle algorithms have been applied at the grid points.

Level 2 Data - Geophysical parameter data derived from the Level 1B data by application of geophysical parameter algorithms.

Level 3 Data - Earth-gridded geophysical parameter data (including Level 1 radiances), which have have been averaged or composited in time and space.

Level 4 Data - TBD analyses of the lower levels of MODIS data.

Distribution Request - Request to send stored data for production of MODIS data products, for archiving at the DADS, or for use by the TMOF.

## **ACTION ITEMS:**

**9/16-1: (McKay) Does MIDACS need to request Level 0 data from the DHC routinely, or will the DHC send Level 0 data to MIDACS as soon as it is ready without an explicit request?**

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